SEPTEMBER 1959

TRAFFIC ENGINEERING

CONVENTION ISSUE

INSTITUTE OF TRAFFIC ENGINEERS
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How optically flat reflective sheeting keeps entire sign visible in any weather

With the ever-growing volume of traffic on city streets, it is increasingly important that signs function at their highest level at all times. This is especially true at night and in bad weather when the need for visibility is greatest.

Nighttime visibility of traffic signs through reflectivity has been an accepted fact for quite some time. But weather remains an enemy of most traffic signs . . . even reflective ones. That conditions of rain, snow, fog and the like curtail visibility is no secret. The "fair weather" sign, even under such conditions as a heavy dew, loses as much as 95% of its reflective quality.

Optically flat "Scotchlite" Reflective Sheeting, however, stands out in any weather. This is the sign material whose reflective elements are completely protected by a durable coating that not only guards the sign surface, but minimizes the distortion effects of weather.

No blackout in water

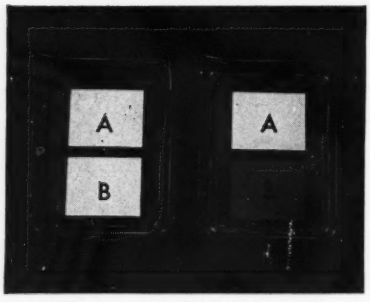

Fig. 1. The pan on the left holds two reflective samples. "A" is optically flat "Scotchlite" Sheeting; "B" is an exposed lens material. When dry, both reflect. In the pan on the right, one inch of water covers both samples. While "Scotchlite" Sheeting loses little of its designed reflectivity, sample "B," with its optical characteristics changed, "blacks out."

"Scotchlite" Reflective Sheeting, as you may know, is a reflex-reflector. It directs collected light from an approaching auto headlight right back to its source. An entire sign of this material reflects the full message of that sign—the true shape, color and legend. Because of the optically flat surface of the sign, its designed reflective characteristics are retained with a minimum loss of efficiency and performance in a heavy rainfall. Motorists can still see the entire sign clearly.

Where reflective elements are exposed, however, water fills in and alters the optical focus, causing a severe loss in reflection. The photo in Fig. 1 demonstrates this point.

Shown are two pieces of reflective material. That labelled "A" is optically flat "Scotchlite" Sheeting. "B" is exposed lens sign material. In the first picture, both are dry, both reflective. In the second, both have been placed *under water*. You can see how the sample of "Scotchlite" Sheeting continues to reflect to a high degree while the other, sample "B," has blacked out. Here is positive proof that "Scotchlite" Sheeting succeeds in communicating when exposed lens systems fail.

* * *

All-weather performance

Because of its high brightness and optically flat construction, a sign of "Scotchlite" Reflective Sheeting gives the best possible performance in rain, snow, dew, etc. It is the best answer man has yet devised against the enemy—weather.

On city streets, motorists see the full shape, color and legend of a sign of "Scotchlite" Sheeting. Optically flat surface, with reflective elements protected from weather, remains distortion-free even during heavy rain. Sign won't "black out." Long and short range brightness stays high.

Most effective sign material

Performance in any weather, of course, is just one measurement of an effective traffic sign. There are others that you may be interested in even more. For instance, angular performance for full-range brightness, ease of fabrication and maintenance, durability under city traffic conditions, economy. The most effective sign material for you is the material that offers the best performance and durability characteristics at the lowest over-all dollar cost. Only precision-made "Scotchlite" Reflective Sheeting meets these requirements so well.

Your 3M Representative will be happy to demonstrate any or all of these points to you. See him soon.

Or for more information on effective, durable all-weather signs of "Scotchlite" Sheeting, write: 3M Company, Dept. RBI-99, St. Paul 6, Minnesota.

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Whatever your parking meter needs, there are Rockwell M-1 Manuals, Dubl-Duals and Automatics to help solve your metered traffic control problems. Why not have a Rockwell parking meter specialist call on you soon? He represents 25 years of experience in the profitable solution of parking meter problems. Dual Parking Meter Company, Subsidiary of Rockwell Manufacturing Company, Pittsburgh 8, Pa.

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☐ Please have a Rockwell field engineer call.

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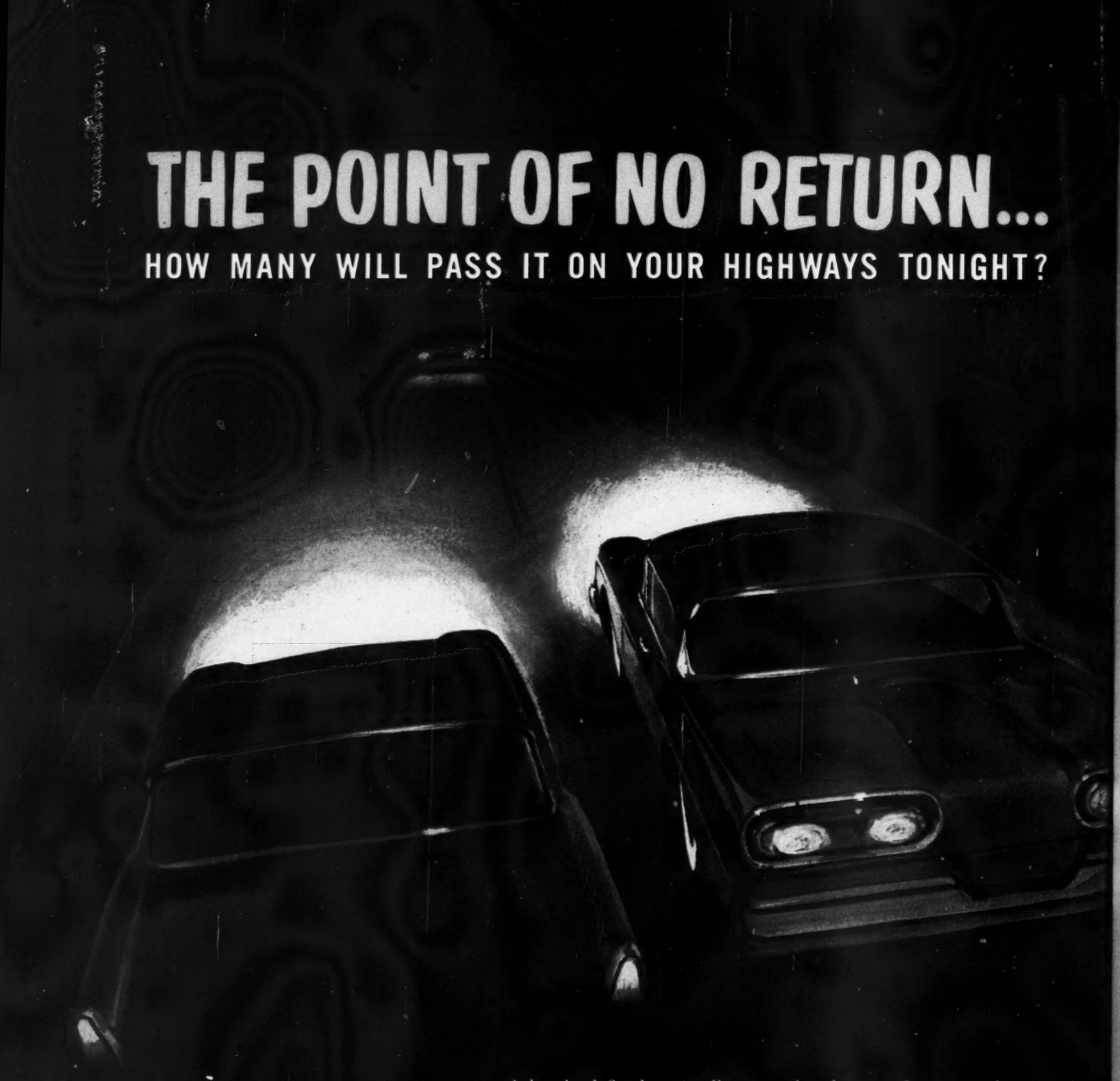
Address:_____

City:_____ Zone:____ State:_____

THE POINT OF NO RETURN...

HOW MANY WILL PASS IT ON YOUR HIGHWAYS TONIGHT?



A barely defined center line . . . the absence of a no passing stripe . . . and a motorist commits a fatal error of judgment. Unaware of the sharply dipping roadway and the oncoming car it conceals, he makes his move. In the next instant, the approaching auto is revealed . . . too late . . . he has passed the point of no return.

Properly laid pavement markings reflectorized with Cataphote Waterproof Reflective Traffic Beads can materially reduce night-time traffic fatalities . . . in fair weather and foul. Many traffic engineers consider Cataphote Waterproof Beads one of their staunchest allies in a never-ending struggle to make streets and highways safer. And . . . a nationwide network of Cataphote Supply Centers assures them of prompt delivery . . . anytime . . . anywhere.

As long as there are roads to drive upon, drivers will err in judgment. Realizing this, the wise traffic engineer uses every means at his command to make existing highways safer. The man who fails to do so, commits the gravest error of all.

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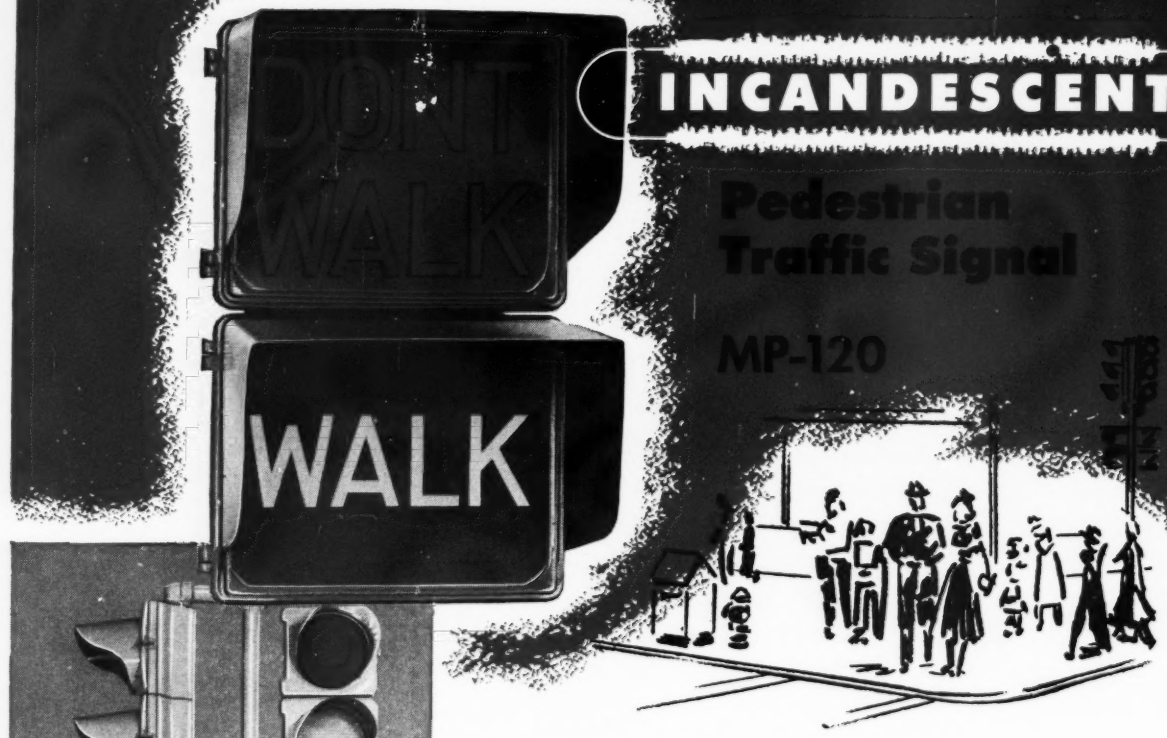

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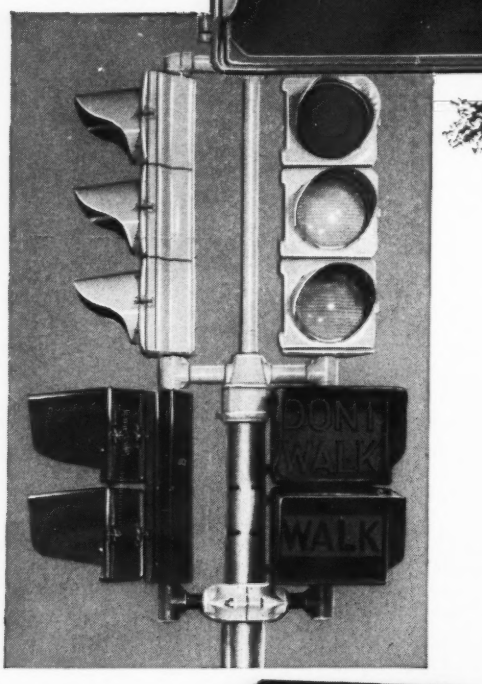
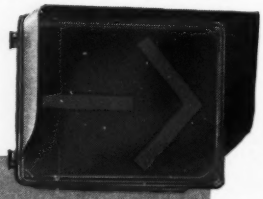


ABOVE — MP-120 Installed on Standard Signal

RIGHT—Arrow for Vehicular Use MP-110



WRITE for Bulletin #2716 containing complete information and specifications on the MP-120 Pedestrian Traffic Signal today.

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TRAFFIC ENGINEERING

OFFICIAL PUBLICATION OF THE INSTITUTE OF TRAFFIC ENGINEERS

Vol. 29 SEPTEMBER, 1959 Number 12

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COVER: New York City Traffic Department "WALK" signals guide hordes of pedestrians daily at this busy intersection at Fifth Avenue and 42nd Street. More than 1,650 of these effective controls are located at nearly 300 key intersections in business and shopping centers throughout the city.

TRAFFIC ENGINEERING is published monthly by the Institute of Traffic Engineers. Editorial offices are at 2029 K Street NW, Washington 6, D.C. Advertising plates should be sent to Interstate Printing Corp., 400 Watchung Avenue, Plainfield, N. J. Advertising representatives: New York—Seymour A. Robbins & Associates, 489 Fifth Avenue, N. Y. 17. Chicago—Scott Kingwill & Associates, 35 E. Wacker Drive, Chicago 1. Los Angeles—Jess M. Laughlin Co., 3142 Wilshire Blvd., Los Angeles 5. Entered as second-class matter November 7, 1941, at the Post Office at Plainfield, New Jersey, under Act of March 3, 1879. ¶Single copies 50 cents, subscription price $4.50 per year in the United States and Canada; $5.75 per year to foreign countries.

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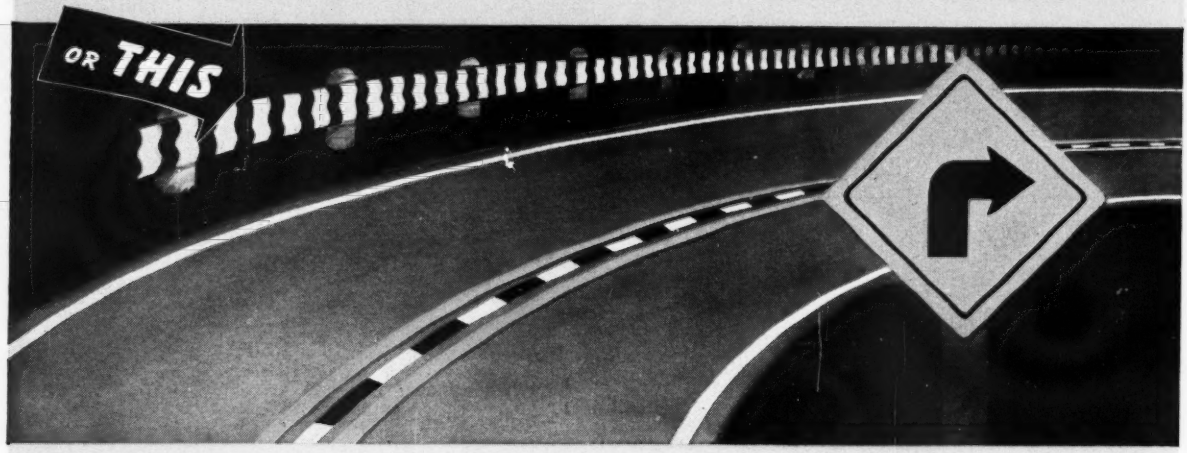

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Frankly Speaking . . .

WE WELCOME ALL MEMBERS and guests to the Twenty-ninth Annual Meeting of the Institute of Traffic Engineers. It is significant that we meet in the same city where the first annual meeting of our organization was held. In some respects, our conference is analogous to the objectives of the first meeting in 1931. As a result of the increased use of the automobile of that era, many of our cities faced strangulation by street congestion. This made it necessary for communities to find a solution, not only to congestion but to the ever increasing number of accidents. The desire to meet this problem stimulated the development of the traffic engineering profession.

We hold high our respect for the charter members of our Institute for their early accomplishments. Through their ingenuity, they created many of the principles of traffic engineering that are basic in today's traffic operations. Some of the problems they faced in the development of those principles could be traced back to the early annual meetings. Such devices as one-way streets, proper signs, markings, channelization, traffic signals, etc., started our profession on its way. City after city soon recognized the importance of the application of traffic engineering techniques as a means for expediting traffic flow and reducing traffic accidents. It would have taken quite a dreamer in those "Roaring Twenties" to predict that those same choked streets would some day carry four times as much traffic in a faster and safer manner. But it was done by a small, dedicated group of traffic engineers, many of whom are still active in our profession.

Today we find ourselves in a rather similar situation resulting from technological and social developments that are changing the transportation pattern of our cities. The vast highway program, together with rapid urbanization of metropolitan areas is causing much concern to municipal and state officials. Here, again, we stand at the threshold of a golden opportunity to help find a solution to this dilemma and thereby enable our profession to gain more recognition. "What can we do to meet this challenge?" was partially discussed in the recent report emanating from the Highland Park Workshop. This annual meeting will be a springboard for appraising some of these recommendations.

A further solution to the problem of future traffic is the development of proper technical studies. The technical sessions at this conference contain many aspects of new techniques in traffic engineering. You are urged to participate in these discussions, not only for the purpose of gaining more knowledge, but to assist in the development of better technical information.

MATTHEW C. SIELSKI
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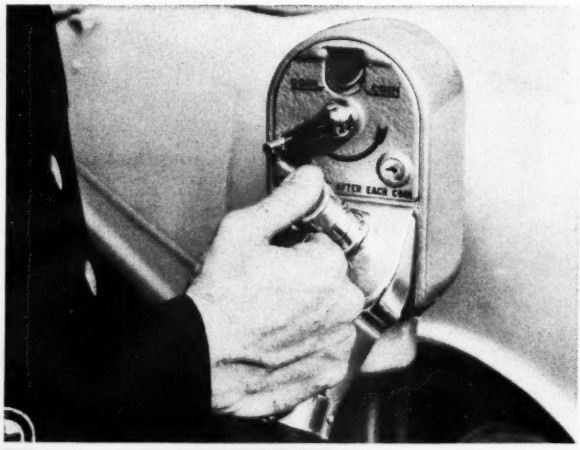

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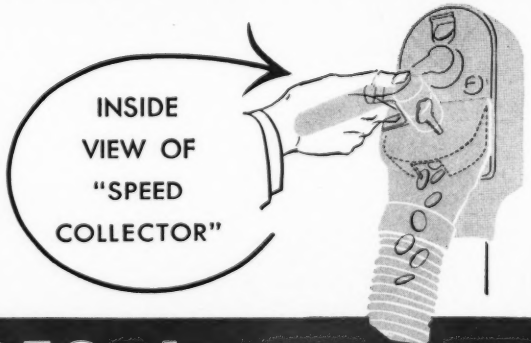

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Traffic Engineering in The City of New York

By T. T. Wiley
Commissioner of Traffic
City of New York

JUST OVER NINE YEARS AGO—on June 7, 1950, to be exact—the Department of Traffic was created by amendment of the New York City Charter. This was an important change in city affairs, marking a complete break with the past and inaugurating a new era in traffic engineering activities in the City of New York.

Prior to 1949, traffic engineering activities had been conducted by the Police Department. Handicapped by inadequate personnel and equipment, secondary administrative rank, and other obstacles, it is remarkable that the men who carried the responsibilities many years were able to do as well as they did.

The great upsurge in traffic after World War II was simply too much for the limited resources of the engineering staff of the Police Department. An agency of department status, with prime responsibility for traffic engineering, was obviously necessary. Early in 1949 a seven-man Traffic Commission was created consisting of heads of city agencies whose activities related in some way to traffic. At the same time a Department of Traffic engineering was established to serve as technical staff for the Commission. It quickly became obvious that this system was not going to succeed either. Full time, centralized responsibility was the crying need, and this need was met by the action on June 7, 1950.

The Department of Traffic is headed by the Commissioner of Traffic appointed by and responsible to the Mayor. The powers and duties of the Commissioner include the following:

1. Establish the rules and regulations for the conduct of vehicular and pedestrian traffic on the streets and highways (excluding parkways under jurisdiction of the Parks Department).
2. Determine and establish the use, location, and design of signs, signals, markings, and other devices guiding, warning, or regulating traffic.
3. Install and maintain traffic control devices.
4. Determine and establish parking meter zones and install and maintain parking meters.
5. Plan, construct, and operate off-street parking facilities (a separate, later assignment not part of the charter).
6. Determine causes of accidents and take action to prevent accidents.
7. Conduct a traffic safety education program.
8. Recommend to the mayor, and other agencies improvements such as new highways, street widenings, highway lighting and other actions to improve traffic conditions beyond the direct responsibility of the department.

Traffic Commissioner T. T. Wiley (right of signal) and some of the 80,000 New York Girl Scouts who participated in the kick-off ceremonies of the 1959 Pedestrian Safety Education Month.

As this is written, a local law is near adoption which would establish a concurrent responsibility with the Police Department for enforcement of parking meters. It is contemplated that a field force of 100 women will be assigned to this function.

The jurisdiction and responsibilities

of the department embrace the five boroughs — Manhattan, The Bronx, Brooklyn, Queens, and Richmond (Staten Island). The characteristics of communities range all the way from the great concentrations in Manhattan to the farm lands of Richmond. The street system in the five boroughs totals approximately 6,000 miles, with approximately 30,000 intersections. There are 1½ million registered motor vehicles within the city limits. Approximately 8 million people reside in the city, with about 15 million total in the metropolitan area.

The day-time population of Manhattan below 59th Street, an area of about 10 square miles, is nearly 4 million people, traveling by foot, scooter, auto, taxi, bus, commuter railroad, and subway. The number of motor vehicles entering that area on the average business day is approximately 525,000. Incidentally, this is an increase of about 40% during the 9-year life of the Department.

The basic street pattern in Manhattan and in much of the area of the other boroughs consists of avenues spaced generally 750 to 900 feet apart, with intersecting streets spaced 20 to the mile. This leaves no room for alleys, so that practically all goods and merchandise is handled by trucks loading and unloading at the curb. The garment area (6th Avenue to 8th Avenue, and 35th Street to 40th Street) is the notorious example of truck loading and unloading difficulties. In the Bronx, and in Brooklyn, the adjoining neighborhoods do not match up in street systems so that there are a multitude of irregular intersections to plague traffic engineers.

Perhaps the one most fundamental thing that makes the City of New York different than others is just the sheer weight of numbers. For example, a check made several years ago before the pedestrian campaign went into effect, showed that during the normal 10-hour business day, the number of pedestrians crossing 34th Street in the middle of the block, between Sixth and Seventh Avenues, exceeded 60,000 people. Those who visualize New York City in terms of Times Square and skyscrapers must make a point of looking underground. The hustle and bustle of people using the subways and commuter trains must be seen and experienced in order to get the real feel of the city.

The Department of Traffic was created about a quarter of a century too late at a time of serious shortages of traffic engineering personnel. It has been necessary to try to catch up with the past, cope with the present, and plan for the future under difficult conditions. Nevertheless, substantial progress can be reported in the application of traffic engineering principles to provide safer, more convenient, and more economic transportation for the people of this city.

New type mast arm traffic signals installed at 42nd Street and 7th Avenue. Designed by the engineers of the Department of Traffic, these modern three-level signals provide high signal visibility in the busy Times Square theatrical district.

The current Expense Budget of the Department is approximately $4,200,000. The Capital Budget provides approximately $2,000,000 for purchase and installation of traffic signals and other major traffic devices, and approximately $10,000,000 for off-street parking facilities. The authorized personnel of the Department totals just under 500 people, with major installation of electrical equipment and maintenance of electrical devices and parking meters carried out by contract.

The Department embarked upon a series of traffic engineering programs as rapidly as needs could be appraised and attacked. One of these is the Traffic Control Plan for Manhattan. This plan was devised as the result of studies of causes of crosstown congestion in Manhattan. In addition to reduction of crosstown delays and increase in capacity of crosstown streets the plan facilitates travel on the avenues, and reduces pedestrian accidents.

Basically, the plan calls for the conversion of all north-south avenues, except Park Avenue, to one-way operation and the retiming of signals for progressive movement on a shorter cycle with a more favorable split for crosstown traffic than possible under two-way operation.

First, Second, Eighth, Ninth and Tenth, Columbus, and Amsterdam Avenues, and portions of Sixth Avenue and Broadway, now operate one-way. The necessity for modifying franchise contracts between the city and bus companies has created delays in this program, but progress has been made on a step-by-step basis.

The results of changes to one-way operation have been consistent. Each time a pair was converted, there was approximately a two-thirds reduction in the number of stops and in the time spent standing still on the avenues. The trip time along the avenues was reduced about one-third. The delays to crosstown traffic at the intersections with the avenues were reduced approximately 50%. The crosstown capacity at the intersections under continuous flow was increased approximately 20%. Of particular significance is the fact that in every instance there has been a sharp reduction in pedestrian accidents, averaging about 25%. This alone has made the program worthwhile.

The Traffic Signal Improvement Program is another major activity. Many installations were obsolete and inadequate.

As an economy measure, the City used two-color signals and, along many major arteries with intersections at the rate of 20 to the mile, the STOP ON RED system requiring drivers to stop at the nearest intersection if the next signal was red, had been adopted. Then "fill-in" signals replaced some of the STOP ON RED controls, contributing to over-use of signals. Over 8,000 intersections are signalized.

Although new installations have been necessary as the City and its traffic expanded, the principal problem has been the modernization of the old. A new type of mast arm was designed so that signals for vehicles could be put out over the roadway where they could be seen. New controllers were purchased for use on major thoroughfares so as to permit the use of flexible timing schedules. Three-color signals were adopted for modernized and new installations. Progressive timing has replaced simultaneous on many major thoroughfares, involving removal of signals and elimination of STOP ON RED. Needless to say, these changes present touchy public relations problems.

The City now has under contract the installation of a radio control signal system for Hillside Avenue in Queens using the assigned frequency of 453.25 megacycles. This system should be in operation early in 1960. It is capable of expansion so that central station control could ultimately be exercised over all signals in the city. Traffic-actuated controllers of various types are also being used.

An important phase of the signal program was the development of a new type of pedestrian signal. These signals give the right color at the right time and are of sufficient size and signal strength to stand out in the complex maze of illumination found in many areas of the city. The first installations in Times Square reduced pedestrian accidents at the two most critical intersections from 60 in the year before installation to 14 in the year after. Traffic checks show that the number of pedestrians caught in the street on the vehicular signal change has been reduced by over 50% by the use of these WALK - DON'T WALK signals. Over 1,600 are now in use at more than 300 intersections.

Parking has steadily become a more and more important phase of the traffic problem. After all, parking is just as much a part of the act of transportation as is movement of vehicles.

The Department embarked upon its parking meter program with the installation of 1,500 meters in 1951. These meters quickly proved their worth, with the result that the use of meters has been steadily expanded year by year. There are now over 50,000 street meters in operation in 192 areas in the city. The fee is 10¢ for whatever time limit is in effect. The annual revenue is approximately seven million dollars.

A relatively recent responsibility of the Department of Traffic is the development of an off-street municipal parking system. This is a three-pronged program to provide:

1. Parking facilities adjacent to the subway system for use by commuters.
2. Parking lots in outlying business areas for business, shopping, and other parking purposes.
3. Parking garages in the highly developed core areas for short and medium duration parking.

The parking garages are to be located, designed, and operated to serve the productive parking by the people coming into the areas for business, shopping, recreation, and other purposes. All-day parking will be discouraged by fee schedules.

St. George Municipal Parking Field, Staten Island, a 566-car metered parking facility, accommodating over 153,000 commuters and shoppers annually, one of ten Department of Traffic parking lots of the City's Municipal Parking System.

The ultimate off-street parking program is now estimated to cost over $100,000,000. Now open and operating are 11 parking lots. Two garages are now under construction. One in Manhattan, at 8th Avenue and 53rd Street, will provide approximately 450 spaces. The other is an underground garage for 700 cars in the Brooklyn Civic Center. Forty-six additional facilities are in various stages of planning and design.

For those who like to deal in good-sized figures, no answer has yet been found as to what to do about the three-quarters of a million cars parked on the street all night.

Another program has involved the installation of new signs that were needed for traffic regulations and replacement of many old obsolete signs. At the present time there are approximately 330,000 traffic signs in place throughout the city. The Department has its main Sign Shop under the Manhattan approach to the Queensborough Bridge, with subsidiary operating shops in The Bronx, Queens, and Brooklyn. STOP signs and YIELD signs have been used effectively to create a system of major and minor traffic arteries and to provide necessary control at isolated intersections.

Standing has been prohibited during rush hours on over 100 miles of arteries. Of particular interest is Operation Crosstown, the program name for NO STANDING, NO PARKING regulations now in effect in midtown Manhattan from 43rd to 53rd Streets. Under this regulation, parking is prohibited at least from 8 a.m. to 7 p.m. on both sides of the narrow crosstown streets and STANDING is prohibited on the north side from 8 a.m. to 1 p.m., and on the south side from 1 p.m. to 7 p.m. This regulation has reduced total crosstown trip time by from 10% to 15% between Third Avenue and Eighth Avenue, by making one or the other curb lane available for movement throughout the normal business day.

The personnel applies approximately 10,000,000 feet of pavement marking each year. Hot plastics have been successfully used in marking over 8,000 school crosswalks.

A city-wide, comprehensive Traffic Safety Education Program was started in November, 1957. This was made possible by the creation of a Community Relations Division of the Department, headed by a Director of Traffic Safety Education. A program was outlined, the Mayor appointed a Mayor's Committee for Pedestrian Safety made up of outstanding business leaders, and a major advertising

(Continued on page 50)

Coordinated Urban Transport Planning in Scandinavia

By John Insco Williams
Architect and Planner
City of Helsinki Metro Commission

THERE HAS BEEN much talk recently about better coordination of traffic and transport engineering with city planning work. At the same time there has been much discussion about the rehabilitation of mass transport systems. To see what kind of progress results from doing something about these particular problems, rather than only talking about them, it is worthwhile to look at the larger Scandinavian cities — now faced with rapidly expanding population and greatly increased automobile ownership — and study the progress that they have been making during recent years.

Coordinated Study and Planning of Public and Private Transport

The emphasis given to coordinated study of different modes of transport is quite surprising to visitors from the U.S.A. In Helsinki, where the first report of the City Metro Commission has just been made public, the traffic survey and prognosis covers both automobile and transit riders and in addition to giving the conclusion that construction of a rapid transit system or "metro" lines is inescapable, it recommends enlargement of the existing general plan for highway development. This particular study is somewhat similar to the Washington Mass Transit Survey in that first, travel desire lines were calculated, then passengers were assigned to different combinations of travel methods. The three basic alternatives studied in Helsinki were: 1) 50 or 75% of all evening peak hour trips were assigned to automobiles and the balance to buses on public highways. The number of highway lanes and parking spaces in the CBD needed were calculated, and were found to be impossible of accomplishment. 2) Trips were distributed to automobiles and buses in such a proportion that all could be carried by the traffic lanes to be provided by the General Plan. Calculations showed that in order to carry this load, most of the highway space would be filled by buses, and it was felt that private motorists would never permit such a situation to arise. 3) Trips were assigned to high capacity rapid transit lines in the heavy corridors of travel, and to automobiles on the highway system of the General Plan. This alternative appeared to be most practical and to provide the highest standard of service — both by transit and by auto.

The traffic survey used as a starting point in the Helsinki study was an origin and destination study made in 1956. The traffic department of the city planning bureau surveyed motor vehicle traffic, and the Helsinki City Transport system surveyed its passengers.

Copenhagen, in its recent traffic survey, utilized a combination of survey methods that included cordon counts; an origin-destination study which utilized personal interviews at homes, transit stops, and rapid transit stations; transit passenger counts, and a parking inventory.

Another study has been made recently in Copenhagen by a special committee interested in both automobile traffic and public transport questions. Two basic alternatives for future transport development were considered; however it is important to notice that this was *not* an "either—or" situation—that is, either all development will be in highways, or all development will be in mass transit. Both alternatives treated highways and transit, and both included new facilities for autos, rapid transit, and surface transit, but differed only in the relative amount of investment to be made in each mode of travel, and the quality of service resulting.

Off-Street Transit Of Major Importance

The improvement of public transport systems is considered to be a principal weapon in the battle against congestion in the major Scandinavian cities. It is felt that such improvements benefit both transit riders and motorists. The removal of heavy transit lines from the streets to segregated rights of way is receiving much attention in these cities. Such facilities are considered to be the only way to shift motorists from their cars to mass transit. Appeals to ride transit have not helped, as people would rather sit in their own cars than in a bus, when caught in a traffic jam. If persons who have a choice of auto or transit are attracted to grade separated transit lines in large numbers, it is much easier to provide street and parking facilities for persons who *must* use automobiles, and eases the delivery of goods.

Stockholm is making heavy investments in its rapid transit system, which will allow sizable reductions in the surface transit system and greatly ease the pressure on the radial street and highway system. The highways proposed in the regional plan show a considerable emphasis on circumferential routes. It is expected that transport completely within the outer area, where it is easier to provide street and parking space, will be served largely by private automobiles.

The provision of extensive facilities of this type for automobiles in the cen-

tral area, without mass transit, is considered in the regional plan to be economically impossible. The Scandinavian cities in general are greatly concerned about the people who work, shop, or live in the inner city and are not willing to give up precious parking space for great expressways or parking lots. The planners find that it is considerably easier to fit a two-track rapid transit line into the city pattern than an eight lane expressway with interchanges.

Common Facilities for Transit and Automobiles

Coordinated planning of transport and highway facilities has resulted in great economies in construction costs. In Stockholm, bodies of water and other natural features break up the city into many areas and make the construction of transport facilities very expensive. Much money has been saved by providing separated lanes for rapid transit and automobiles on the same bridge in several locations. Many miles of the new rapid transit system share the right-of-way with major traffic thorofares, either in the median strips or closely paralleling the roadway. Gothenburg and Helsinki have similar facilities under construction or in operation.

Transport—A Function of Land Use, and Vice Versa

City planners in Scandinavia realize that not only must different modes of transport be coordinated with each other, but also that planning of other phases of city and regional development must be done in close cooperation with the transport planners.

When planning residential areas much attention is given to the transport problem. The effect of new traffic upon transport channels connecting each new area with the city center, and other areas, is studied in the following manner. The probable capacity of present or proposed highways, rapid transit lines, and railways is determined, and estimates are made of the trips that would be generated by new development. The next step is to adjust the disposition and number of living places and other land uses within an area in a manner that will produce a travel pattern that can be served by a reasonably economical and convenient transport system. As most areas contain some existing development, this will influence the proposed land use pattern and will affect the cost of new transport ways. In one sector it may be discovered that the number of residents proposed will not produce enough riders to justify a rapid transit line, but too many trips for buses and private cars to handle on a highway system which could be built at reasonable cost. The parking problem, and terminal problem for such a bus traffic in the central area also might be difficult. In this case, one solution would be to reduce the proposed population to a level that could be served by street transit and automobiles. Or the opposite solution would be to increase the size and density of the area, so that it could support an off-street rapid transit facility. In another sector there might be enough trips generated to justify the construction of rapid transit lines and new grade separated highway facilities, but the proposed development could be so disposed that it would be difficult for passengers to reach rapid transit stations, or the rapid transit line might be difficult to build or operate. In the case of highway traffic, too many long access roads and expensive interchanges might be necessary. To correct this situation the development plan is rearranged to provide a pattern more easily served by transit, and more acceptable for street bound traffic.

Gothenburg, Sweden provides interesting examples of this manner of planning. Though the present population of Gothenburg is only 350,000 the city is extending streetcar lines into the new suburbs over grade separated rights-of-way built to rapid transit standards. Eventually they will be joined together to form a complete system, with an underground line through the central area. The engineers of the transit department work hand in hand with the traffic engineers and city planners to locate the rapid transit lines and the land uses they are to serve in the most rational pattern.

Fixed facilities, such as a rapid transit line, are not considered a deficit, but an asset, as they form a solid framework for planning and growth of residential areas and commercial centers.

The density within residential areas is a particularly crucial item that affects the design of a transport system. Scandinavian cities favor higher density development in suburbs than is found in the U.S.A. However, in recent years in the U.S.A. there has been a

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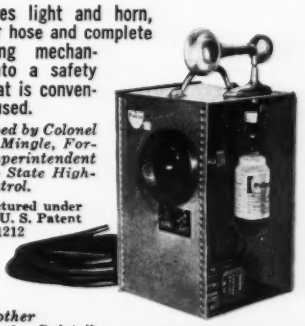

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trend of increasing activity in the construction of multi-family housing. An enlightened planning commission could arrange that such high density development be placed in a pattern that can be served by off-street rapid transit. In the outer portion of Greater Stockholm where lower density housing already exists, but in an area large enough to generate sizable passenger loads for high capacity mass transport, additional capacity is proposed for the State Railways high speed electric commuter train service—supplemented by feeder buses and "park and ride."

To ease the traffic load on all communication lines leading to the city center an attempt is being made toward controlled decentralization of some work places and commercial activities. This has the added advantage of providing passengers on the mass transit system moving in a direction opposite to the normal peak hour flow, and makes better use of highway facilities. Industrial areas are placed between residential communities, suitably insulated from the latter by green belts. In some cases lighter industry and offices are brought into the center of the residential area along with shopping, and public welfare services. Zoning regulations tend to be much more liberal and realistic in this respect than in the U.S.A. A typical example of this type of planning in Stockholm is the Johannelund industrial area on the western rapid transit line just outside of the internationally known Vällingby suburb. Vällingby offers additional work places in shops and offices located on its central square — *a pedestrian plaza built over the rapid transit station.* Similar areas are being planned or built in connection with rapid transit projects under way *in Oslo and Gothenburg.*

A continued concentration of many activities in the central core of cities is expected in Scandinavia. This question is quite thoroughly discussed in the "Regional Plan Proposal for Stockholm," which states that in spite of long journeys to work and congestion, the concentrated city center is an economical community pattern. Though activities which deliver or process goods may move out from the center, the industries which largely provide services need close contact with one another and seek central location.

Coordinated planning of land use and transport is especially vital in the central area. Today, Stockholm is carrying out the sizable Hötorg-City redevelopment project in the very heart of the city, in which transport, and particularly rapid transit, is taking a major part. A group of five great office towers with a shopping plaza is rising from a great canyon created by the construction of the new rapid transit line. Streets in the redevelopment area are being completely replanned. The interchange point between three of the principal streets is to be elevated above a pedestrian shopping plaza—the space under the roadways to be occupied by stores. One older street leading into this plaza will be converted exclusively to pedestrian use. Passageways from two rapid transit stations will feed some 400,000 passengers daily directly into the pedestrian oasis. Off-street loading areas for trucks and parking for 1600 automobiles are planned as well.

An interesting sidelight of this project concerns the planning of bus stops in the new street system. To avoid any mistakes in planning that would be quite difficult and expensive to correct, the planners, traffic engineers and the Stockholm Passenger Transport system laid out a full scale model of the proposed street plan, using a section of Bromma Airport, and drove buses and automobiles over this model to determine the optimum plan.

Coordinated Operation of Different Modes of Travel

The coordinated operation of different transport facilities is making some progress in Scandinavia. Feeder bus lines, plus "park and ride," provide more riders in suburban areas for the rapid transit system. The rapid transit in Stockholm at present consists of a line stretching from the western suburbs, through the central city, into the southern suburbs, where it divides into three branches. This system provides access to the central city for 18 feeder bus lines and one suburban streetcar feeder line. The second rapid transit line, now under construction, also will have a sizable feeder bus network.

The State Railways suburban and long distance passengers have connection with the rapid transit in the center of the city via a pedestrian tunnel leading directly from the railway platforms to the rapid transit station.

A very ambitious project which proposed to combine all of the different

(Continued on page 48)

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Annual Meeting, Hotel Leamington, Minneapolis, Minn. Contact: ATA, 355 Lexington Avenue, New York 17, N. Y.

October 11-16 — AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS—
Annual Meeting, Hotel Statler-Hilton, Boston, Massachusetts. Contact: AASHO, 917 National Press Bldg., Washington 4, D.C.

October 19-22 — INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION—
Annual Conference, Stardust Hotel, Las Vegas, Nevada. Contact: IMSA, 130 West 42nd St., New York 36, N. Y.

January 11-15—HIGHWAY RESEARCH BOARD—
Sheraton-Park Hotel, Washington, D. C. Contact: Highway Research Board, 2101 Constitution Ave., Washington 25, D.C.

Bergen Grows — Traffic Engineering Evolves

By Ernest A. Boulding
Traffic Engineer
Bergen County, N. J.

GROWTH — and with it — problems. A political entity must always face the many and varied problems caused by expansion and development. Bergen County, New Jersey, due to its relationship to the New York metropolitan area has been and still is confronted with such an outlook.

Bergen County, as shown in Figure 1, is situated along the westerly shores of the Hudson River and is bordered on the north by New York State. The westerly and southerly borders of the county abut the counties of Passaic, Essex and Hudson. With the acceptance of the motor vehicle as a way of life, the desire of the public for suburban living, and the construction of highways and many bridges, particularly the George Washington Bridge, Bergen County, one of the twenty-one New Jersey counties, grew most rapidly.

The expansion of Bergen County *can be seen in* Table A, showing the population increases from 1900 to 1970. In the half century (1900 to 1950) the population has increased seven fold; however, the greatest increase in a ten year period is now becoming a fact. Bergen, compared to its neighboring New Jersey counties, is experiencing the greatest population increase since World War II. The State population gain (1950-1960) is only 21.9% as compared to the Bergen County increase of 46.5%.

Another way of featuring the County expansion is by determining its developed area — area devoted to residential or non-residential (non-farming) uses. Out of a total county area of 235.8 square miles, in 1950 only 43.70 square miles (or 18.6% of the total) were developed. In 1957, 98.13

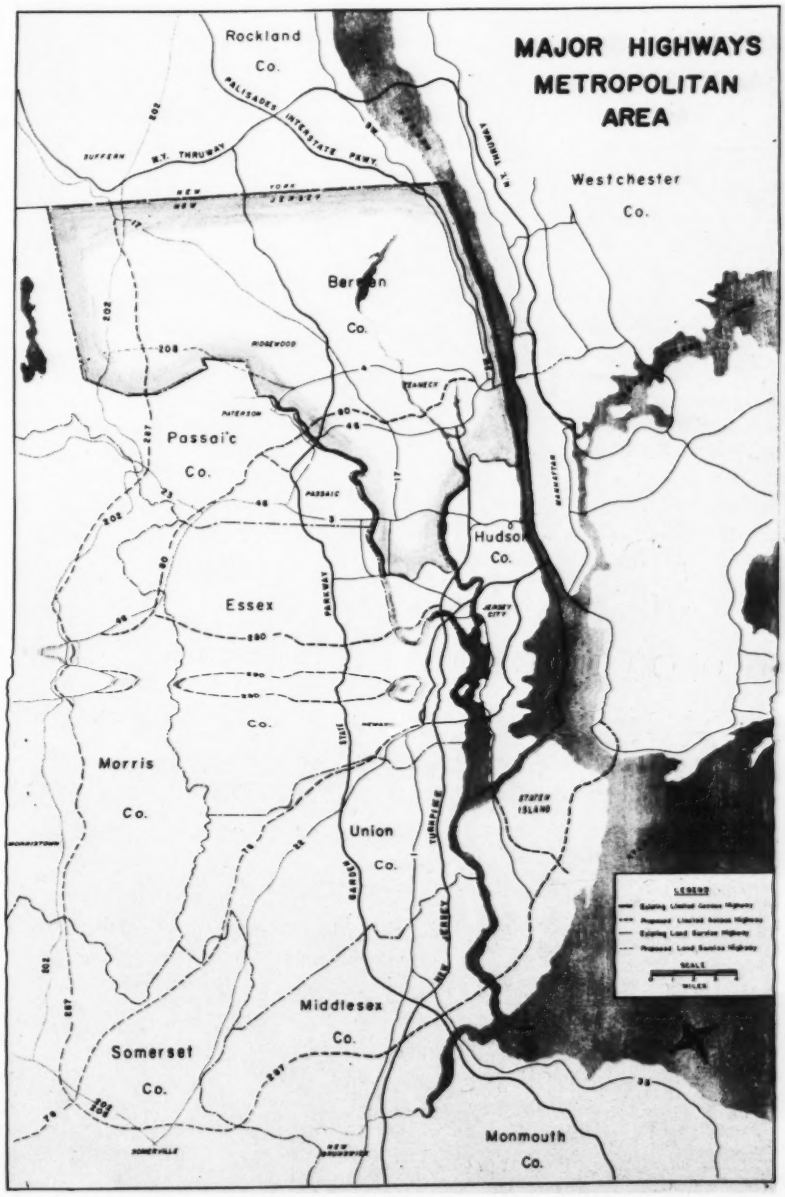


Figure 1
Bergen County and the New York Metropolitan Area.
Courtesy of Bergen County Planning Board

TABLE A

BERGEN COUNTY POPULATION STATISTICS — 1900 to 1970

Year	Population For Year	Increase over last 10 Yr. Period No.	%
1900	78,441	59,561	75.9
1910	138,002	72,641	52.1
1920	210,643	154,334	73.2
1930	364,977	44,669	12.2
1940	409,646	129,493	31.6
1950	539,139	250,861	46.5
1960	790,000 (Est.)	210,000	26.6
1970	1,000,000 (Est.)		

square miles (or 41.8%) were developed. Approximately 60 square miles (or 25.5%) of Bergen is swamp land or land with excessive slope, requiring costly reclamation. About one-third of the total area of the county is readily developable at present and will absorb the future expansion of industry and business as well as increases in population.

Exact information concerning motor vehicle registrations for each county is not available due to the present State licensing procedures. Estimates, however, showed that the Bergen vehicle registration had passed the 300,000 mark in 1958 and will be over 400,000 by 1970.

The retail sales is a key to the county growth. Such sales increased from $446,166,000 in 1950 to $507,787,000 in 1954, a jump of 13.8% in the four year period. The Bergen County sales in 1957 are estimated to total $1,013,852,000, an increase of nearly 100% in a three-year period.

A considerable amount of this sales activity in the period 1954-1957 was created by the construction of two regional type shopping centers along New Jersey Route 4 within 1.5 miles of each other. The retail sales of these two centers have been reported to be averaging $500,000 daily.

The Garden State Plaza, the larger center by area (Figure 2) and the Bergen Mall, providing two parking levels (Figure 3), each contain in excess of fifty stores and services and have parking spaces in excess of 6,000 vehicles with access to the parking areas from major roadways. In each center, the stores, selling all types of merchandise, surround the landscaped, canopied malls and are served by underground shipping and receiving areas. The centers are a boon to the shopper since he is not confronted with a parking problem which is prevalent in the older city business areas of the county.

recording fatalities caused by motor vehicle mishaps. Such statistics seek headlines.

The yearly accidents and fatalities in Bergen County by road system are shown in Table B. Although the annual fatalities fluctuate, there has been a steady increase in accidents in the county. The vehicle miles of travel on each system is not available and, therefore, comparable rates cannot be calculated. For informational purposes the mileage of each system in 1959 in Bergen is as follows: 27 miles of limited access roads; 84 miles of State highway; 460 miles of county roads; and 1,793 miles of municipal streets.

The Board, realizing the need to adequately cope with the many and varied traffic problems, retained the firm of Tippetts-Abbett-McCarthy-Stratton in April 1957 to appraise the county traffic engineering requirements and to prepare a report on procedures, organization recommendations and other

TABLE B

YEARLY ACCIDENTS AND FATALITIES IN BERGEN COUNTY BY ROAD SYSTEM

Year	Limited Access Roads Acc.	Limited Access Roads Fatals	State Hwys. Acc.	State Hwys. Fatals	County Rds. Acc.	County Rds. Fatals	Municipal Streets Acc.	Municipal Streets Fatals
1953	Note 1		3477	37	Note 2		Note 2	
1954	Note 2		3693	31	3829	15	3505	13
1955	190	1	3653	38	4384	21	4296	6
1956	93	1	4528	23	4756	26	3604	7
1957	Note 1		4585	27	5040	22	4023	7

Note 1—In 1953, 1954 and 1957, the county accident statistics for Limited Access Roads (The New Jersey Turnpike, the Garden State Parkway, and the Palisades Interstate Parkway) were not recorded in the State accident summaries.

Note 2—In 1953, the county and local road accidents were not separated in the State accident summary. The combined accident total was 6542, while the combined fatal total was 33.

Formation of Traffic Engineering Staff

The Board of Chosen Freeholders, the elected governing body of the county, became more and more concerned with the existing and future urbanization of the county, with the resulting increase in travel upon its roadways and with the many, complex traffic problems. The seriousness of the traffic problems has been highlighted by the newspapers when they analyze the accident records of the county. In the last few years, Bergen has led or has nearly led the other twenty counties in the State re-

needs relative to a traffic engineering program. In early 1958, the firm presented its findings, emphasizing the necessity for prompt action to develop a sound traffic engineering plan.

Realizing that the existing county departments were not staffed or organized to provide technical traffic engineering services, and that some essential traffic engineering functions were not performed by any county agency, it was recommended that a small staff, composed of a traffic engineer, a stenographer, a draftsman and four in-

vestigators be initially formed and become a part of an existing county department for administrative purposes. The report emphasized that the county traffic engineering staff, expanding with time to meet its needs, should ultimately become a separate unit within the county government.

Since there is and will continue to be a lack of county office space until early 1960, the advice on staff needs could not be initially followed. In the early fall of 1958, the positions of traffic engineer and stenographer were filled and the very small staff was added to the County Engineer's Office. With the need for increased traffic services, an investigator was added in the spring of this year, even though other county offices were further cramped for space.

Through the splendid cooperation of existing county agencies, the small traffic engineering staff was able to operate on a limited basis. The Engineering Department is assisting as much as possible with the necessary drafting work. The Planning Board is providing traffic volume data where requested and other traffic planning information. The Road Department is cooperating by effecting the traffic engineer's signing and marking recommendations. The Police Department is assisting in every way possible to provide speed and traffic volume data as well as any other survey information which may be requested.

Although the existing traffic engineering staff should be increased in size commensurate to the problem and placed in a position to effectively cooperate with the various governmental agencies and to better coordinate the traffic engineering work, the whole hearted assistance by the aforementioned agencies made the small traffic engineering organization a workable reality for the present. As the work load increases, improvements must be made to the existing staff arrangements. Survey equipment has been provided by the county officials as it has been requested.

Staff Functions

It was proposed by the consultant in his report to have the initial traffic engineering staff fulfill functions such as administration, surveys and studies, traffic regulation, traffic control, traffic design and traffic planning. Within the capabilities of this smaller organization and with the aid of other county agencies, a number of these functions are being performed.

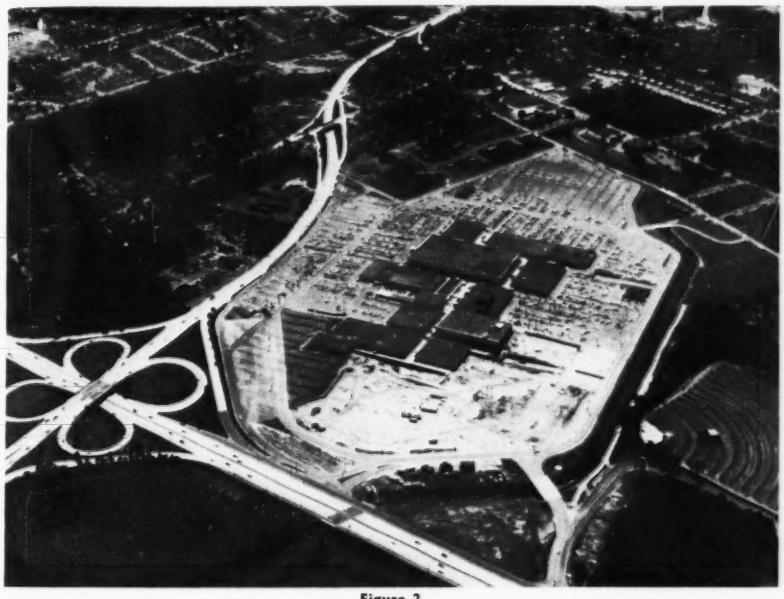


Figure 2
GARDEN STATE PLAZA at N. J. Rts. 4 and 17, Paramus, New Jersey. Rt. 4 is in the foreground and Rt. 17 is to the left of the Plaza. Note: Another department store is being built in the foreground.
Photo courtesy of Garden State Plaza, Inc. by Fairchild Aerial Surveys, Inc.

In the field of administration, the staff is maintaining records relating to traffic problems, surveys, reports, etc. A system of files has been established so that records can be easily located. Contacts have been made with the various county and municipal agencies interested in traffic safety or having traffic difficulties. Further, suggestions have been made to the county officials relative to policies on traffic matters, such as through streets, speed zoning, bus shelters, etc. A considerable amount of administrative time is devoted to public relations, discussing traffic problems with local chiefs of police and other municipal officials, attending public meetings, and giving talks before groups when requested.

At the present time not much effort is expended by the traffic engineering staff in collecting field data. As mentioned previously, the cooperating agencies are providing this service. We are called upon to evaluate, analyze and summarize the data in the preparation of recommendations for a problem solution. In the future, when the

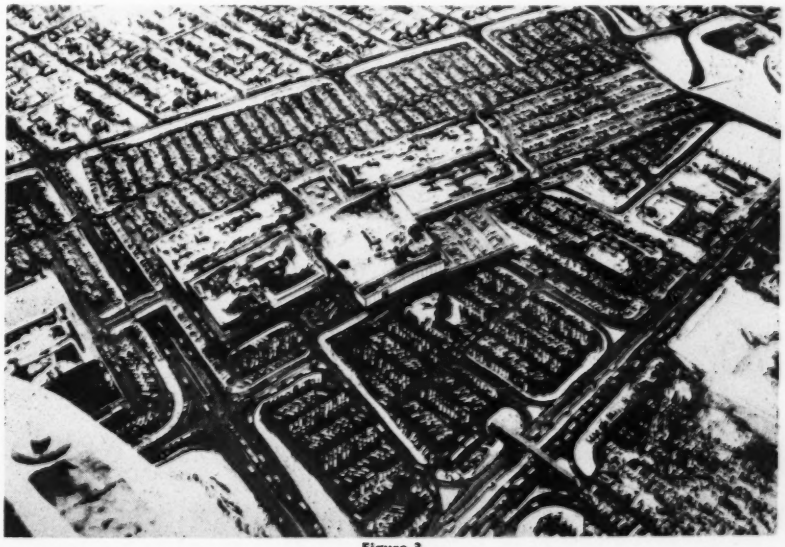


Figure 3
BERGEN MALL at N. J. Rt. 4 and Forest Avenue, Paramus, New Jersey. Rt. 4 extends from the bottom to the right of the photo, while Forest Avenue, a county road, extends from the bottom to the left. Note: The photo was taken in the winter.
Photo courtesy of Allied Stores, Inc.

staff expands, the engineering organization should assume the existing survey duties, and thereby permit the personnel of other agencies to perform their original duties.

In the future the traffic staff should maintain certain accident records for engineering purposes and should analyze these facts for traffic studies. Traffic count data should be collected on a planned schedule and be summarized and traffic flow maps should be maintained. Other studies which should be undertaken are road sufficiency studies, speed-delay studies, capacity studies, parking studies, observance studies, traffic characteristics studies, etc. Some research should also be conducted.

All this information is needed to provide basic, revealing facts and to substantiate definite conclusions to traffic problems, conclusions not based upon personal opinions.

The existing staff has recommended various types of traffic regulations. We are evaluating a few one-way streets proposals and have recently been authorized to conduct a county road through street program. This permits a well-coordinated system of through streets to be established, improves the flow of traffic in the county road system and reduces the numerous administrative details connected with the old through street procedures.

Figure 4
A typical two-lane county road, Kinderkamack Road in Oradell Boro. The road is approximately 28 feet wide with a vertical curb on the left and a narrow shoulder on the right.

The County is beginning a speed zoning program and will take the initiative in conducting such studies along continuous sections of roadway passing through many municipalities. Once these studies are underway and the zoning recommendations are signed, the motoring public and the communities will realize the advantages of the program. Prior to this, the county conducted speed studies along county roads only in the municipalities requesting such studies.

Other regulations, such as turn prohibitions, parking restrictions, truck regulations, etc., are being handled to some extent by the organization.

Figure 5
A typical four-lane county road, Forest Avenue, in Paramus Boro. The road is about 46 feet wide between vertical curbs.

The traffic engineer is presently making some limited signal, sign and marking suggestions at the staff level. Due to the existing county policy not to install, maintain or operate traffic control signals on its system, only a few signal studies have been made. This subject will be detailed later in this article. Signing and pavement marking suggestions are now made as a part of a hazardous location study or as a part of the speed survey investigation. When the staff permits, a greater effort should be made to review all signing and marking of the county road system.

To improve the operational qualities of the roadways, suggestions in road design are made. This year the activities in this area have not been too great but preliminary design has been rendered in a few instances on channelization projects and a review has been made of the operation aspects of some road improvements. This is a function upon which much more should be done with an expanded traffic organization.

Figure 6
The lack of driveway control on a county roadway. Adequate driveway regulations could prevent such conditions.

Traffic planning is an activity which has not received full attention by the traffic engineer and has been left to the County Planning organization. The Planning Board keeps the traffic engineering staff abreast of the county highway planning information and supplies us with its reports.

The traffic engineering agency of Bergen County is in the embryo stage of development and is accomplishing some of its objectives for the safe, efficient movement of people and goods. With the demand for more and greater traffic engineering services, the proper future expansion of the organization should be realized. Although a considerable amount of work has been done with a small staff, much remains to be done.

Other Actions Needed

Aside from the organization problems of the traffic engineering unit, other problems are facing the county. Studies will be required to determine the seriousness and extent of these problems and to provide the Board of Chosen Freeholders with the facts upon which proper decisions can be made. Although the problems are varied, it is believed that the following will require prompt attention to permit proper protection of the county road system and to have it fulfill its functions.

Countywide Planning and Zoning

Most of the seventy municipalities of the county have planning and zoning organizations with its members being appointed by the local government. Under this arrangement, the coordinated planning between municipalities is very difficult, if not impossible to achieve. It appears that many boards are swayed by the fact that a ratable, any ratable, is added to the town taxing rolls and do not ponder the questions of the effect of the "improvement" on the immediate area or its neighboring community.

In some instances, the county has widened a roadway only to have the local board grant zoning variances or rezone the area for commercial development. The improved county road very possibly becomes a congested, unsafe facility.

In order to coordinate development along county roads in all municipalities, to assure proper and planned use of the county road system and to safeguard the public investment in the road network, the county officials should have some control over the planning and zoning along their roadways. This

also means that the county should have the power to influence the development of parking areas adjacent to the county road, thereby preventing the road from being used as a storage area by drivers seeking a place to park in the lot. There are a number of possible ways in which this could be achieved. The County should have more authority than that of an advisor in the field of planning. The regional planning concept will have to gain considerable support before the State legislature will enact a new planning law, providing the desired features of county planning.

Coordinated County Road System

The existing 460 miles of county road system is heterogeneous in design and character. The length of county road varies from 500 feet to 17 miles. The system is composed of pieces, some of them are dead-end spurs while others are not connected to form a continuous route. The paved width varies from 18 feet to over 40 feet. An example of the two-lane and four-lane roads is shown in Figures 4 and 5.

Most of the system is composed of two-lane roads with or without shoulders, while roughly 5% of the total system is wider than two lanes. Thirty-two per cent of the network has a right of way width of less than 50 feet. Much of the narrow right of way is intermixed with sections of wider right of way, thereby making the widening of roadways more difficult and expensive since land must be acquired and buildings moved.

A complete evaluation of the existing road system is required to provide for an integrated county road network of inter-municipal routes and feeder roads to State highways. The county should adjust its mileage, accepting some roadways into the system and returning others to municipal ownership. At the present time, the County Planning Board is analyzing the road system and will prepare a report for presentation later this year.

Once the road system is established, monies can be spent to improve the roads according to accepted standards. Sufficiency studies could be initiated in an effort to establish the priority of the improvements.

Adequate Road Standards

Good design standards should be established compatible with the classification of the recommended road system. These standards, dealing with the cross section and alignment, should promote safe traffic movement for pedestrians as well as vehicles and should provide the desired traffic facilitation. Little time should be lost in determining the extent of the county road network, formulating acceptable design standards, and initiating an improvement of the system.

Initially, it may be desirable to investigate the possibility of establishing building set back lines along the roadways to assure that buildings will not be constructed on the proposed right of way of the road. This is particularly important in outlying, undeveloped areas, which will soon be improved.

Driveway Regulation

There is no established policy and standard on control of access between the roadway and the abutting lands. Driveways the length of the property frontage are in existence. Further, one property may be served by numerous drives with some being located in the corner radius at intersections. The lack of driveway control is shown in Figure 6.

For reasons of safety to motorists and pedestrians, a standard for access driveways should be adopted dictating the drainage requirements and regulating the number, length and location of driveways, depending upon land use. A permit system should be initiated, driveway installations should be inspected, and access regulations should be enforced.

Traffic Signals

Bergen, as a policy, does not install, maintain or operate traffic control signals on its system of roads. Municipalities, wishing such a control, must receive the approval of the State and the County and must assume all costs, before a legal device can be installed. Where the County monies are involved on Federal Aid road improvements, the county does determine the signalization, subject to State approval. The equipment once installed is then turned over to the municipality for maintenance and operation.

At present, some local governments install traffic control signals on county roads without the permission of the State or the County. In some cases, the signals do not meet the provisions of State Law and, in their existing condition, could never be a legal device. We have experienced some instances where the municipality has adjusted the signal timing to benefit the side road traffic at a detriment to the county road traffic and where signal coordination is never accomplished since neighboring towns do not cooperate.

These conditions increase the possibilities of accidents, cause traffic congestion and result in losses in time and money to the drivers.

Interest should be developed in the possibility of the County assuming the installation, maintenance and operation of all signals upon its road network. Questions relating to the financial arrangements and to the maintenance of a variety of different types and brands of signal equipment now existing must be satisfactorily solved.

County Route Identification

With the great number of municipalities and the desire of each for individuality, a county road may have as many names as the number of towns through which it passes. For example, a seven mile stretch of county road passes through five municipalities and is named Maywood Avenue, Forest Avenue, Fourth Avenue and Third Avenue. Such conditions only lead to the confusion of the motorists and to possible accidents, since the signing of the route is impossible.

This problem needs to be given thorough thought to determine a workable solution. A route numbering system could evolve as a possible approach to the problem. Possibly the County should be given the authority to designate the road name, when the municipalities cannot agree on a common name. Any effort to resolve this problem would be a great benefit to the public.

Future Prospects

The County Officials have faced many problems before with resolute ability. They have taken the steps creating the traffic engineering agency and there is every reason to believe that they will continue to guide its growth to cope with the traffic problems. Once a county road network is established and numerous policy decisions are made after thoughtful study, the county government should be able to facilitate traffic safely.

Be sure to visit the "Mark-Time" Hospitality Suite during the 29th Annual ITE Meeting

One Year of Traffic Engineering in Little Rock, Arkansas

By Henry M. DeNoble
Traffic Engineer
Little Rock, Arkansas

THE FIRST traffic engineering program in the history of Little Rock was instituted on April 21, 1958. Prior to that time, Little Rock had no traffic engineering program, no traffic engineer, and no traffic engineering funds. Traffic was handled by the police department and was assigned to a Lieutenant, as is the case in many cities.

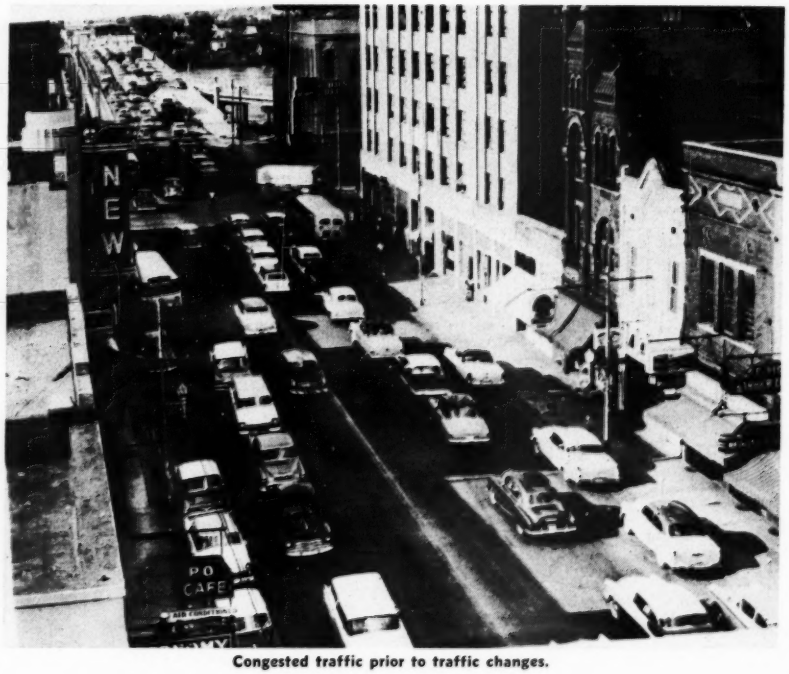
In December 1957, the people of Little Rock adopted the City Manager form of government and in January, Mr. Dean I. Dauley was appointed as the first City Manager. He found that Little Rock, in common with many present day cities, was plagued by a tangled mass of traffic that was virtually choking the streets. Both the downtown section and the outlying areas were being strangled by traffic congestion. The streets were being used as stable yards and the people were becoming increasingly irritated by the battle they had to fight each time they drove in the city.

The terrible traffic tangle had been created by years of neglect because:

1. No one knew what to do.
2. Attempts to solve the problem were stifled by political pressure.
3. No money was provided for traffic improvements.

City Manager Dean Dauley wasted little time in setting up funds for the traffic engineering department. He hired the writer, former traffic engineer of Springfield, Missouri and Lubbock, Texas, to take over the job of traffic engineering in Little Rock.

The Board of Directors of the city immediately passed an ordinance giving the traffic engineer full authority on all traffic matters, including all parking restrictions, all one-way restrictions, all parking meter installations, etc. A budget amounting to $87,000 for the last eight months of 1958 was set up and the traffic engineering program was underway.



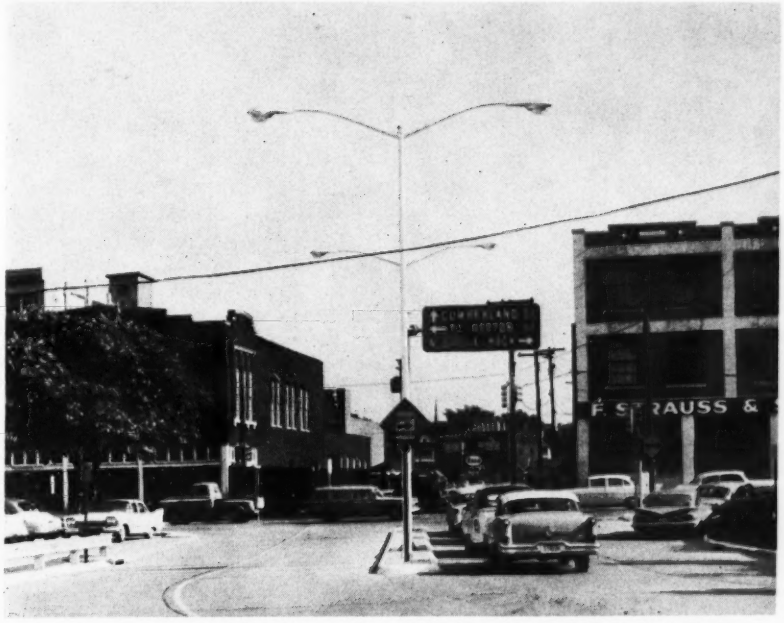
Congested traffic prior to traffic changes.

One of the first programs set up was a public relation and selling program. Speeches were scheduled before all civic groups, and TV and radio programs were planned and scheduled. In the past year the traffic engineer has made 180 speeches to civic groups, clubs, etc. Over 140 television programs have been presented, and over 50 radio presentations have been recorded and played to the public. The traffic engineer has his own TV program two nights a week, and one radio program which is aired each Sunday.

The traffic engineer has receiced 100% cooperation from the citizens of Little Rock, from the Board of Directors, the Arkansas State Highway Department, the Little Rock Police Department, transit company, other city departments and other groups throughout the city. Because of this, drastic changes and improvements have been possible. Some of the changes contributing to Little Rock's improved traffic picture include:

1. Traffic Signals

City signal system studied and revamped. Signals removed where unjustified and installed where needed. Signals re-timed and a maintenance program set up. Fully automatic signalization was installed at six locations and six others are in the process of being installed. Three lane reversible traffic signal control was installed on Highway #10 for a mile and three quarters with such excellent results that an additional mile and one-half of three lane reversible control is to be added to this street. A new downtown traffic



LaHarpe Boulevard East End at Intersection with Markham Street and Cumberland Street.

Henry M. DeNoble with new parking signs used on meters.

signal system was designed and is now ready for the taking of bids. This is a $262,000 program for the installation of a complete new master automatic signal system in the downtown area. The money was provided by bond funds voted in November of 1958. Matching funds have been requested from the Civil Defense Headquarters because the new system is keyed to the full evacuation route system for the city.

2. Parking

Much of the traffic congestion plaguing the city was due to the fact that the narrow streets were being used as parking lots. During the past year full time parking restrictions have been placed on 98 miles of street and part time restrictions on an additional 22 miles. Parking meters have been removed to new locations as needed and short time parking meters, mainly 12 minute meters, have been installed at needed locations. Time parking restrictions were installed in many areas where they were badly needed due to the "all day parker" situation. A new ordinance was passed requiring all new construction to provide off-street parking, so as to eliminate the parking problem in the future. Work was started with private enterprises to provide additional off-street parking where needed throughout the downtown area. Parking was restricted at least 20 or 30 feet on all sides of each downtown intersection.

3. One-Way Streets

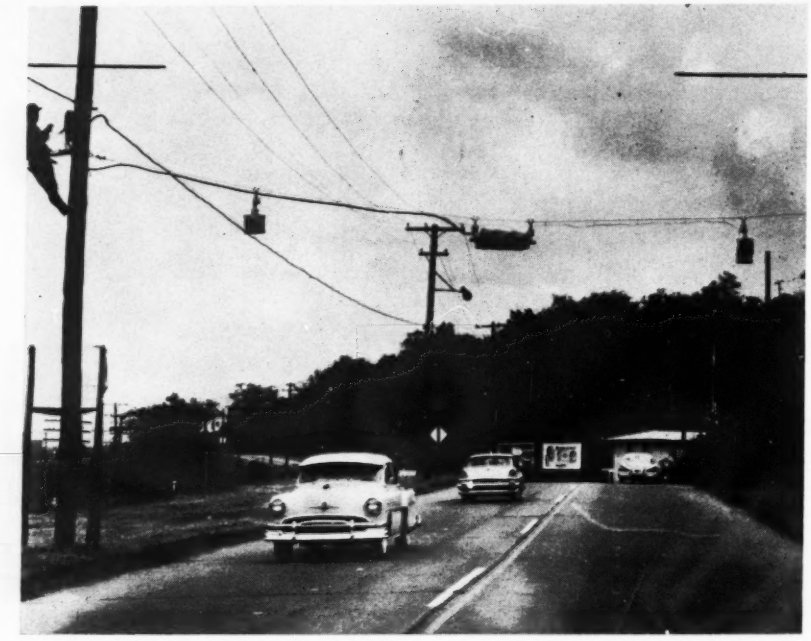
Fourteen miles of one-way streets have been installed in the City of Little Rock to expedite the movement of traffic, and in the downtown area an additional 22 miles of parking will probably be installed within the next 6 months.

4. Signs and Paint

Over 7,200 signs have been installed in the city to indicate new traffic regulations, and over 2,000 old signs have been reworked and replaced in order to clean up the traffic signing and bring it into uniformity. A sign shop was set up for full production of all signs, including $70,000 worth of all new reflectorized street name markers for all of the city's 3,370 intersections.

Over 97 miles of centerlines and lane lines have been painted on the streets, and a continuous maintenance program set up for parking stalls and crosswalks throughout the business district. Arrows, school legends, safety legends, and speed limits have been painted

LaHarpe Boulevard at night—looking under Broadway Bridge.



One of the 24 sets of signals used in controlling 3 lane reversible control of Cantrell Road for 2.6 miles leading from downtown to large residential area.

upon the pavement to help the movement of traffic.

5. Right-of-Way Streets

Right-of-way streets have been established in the city for the first time, and full protection to the right-of-way street has been provided by the erection of proper signs.

Turn restrictions have been placed at quite a number of intersections in order to put into effect proper movement of traffic.

6. Speed Limits

Prior to the institution of the traffic engineering program, 25 miles per hour was the maximum speed in the city, even on major streets and four lane highways running through the city. After complete speed studies, the overall speed limit in the city was changed from 25 to 30 miles per hour and speed limits of 30, 35, 40, 45 and 50 have been posted on thoroughfares where warranted.

New minimum speed limits are also being installed in the city, especially on major streets where the maximum speed is in the 40, 45, and 50 miles per hour category. This new minimum speed is going into effect through cooperation with the State Highway Department and the city's forces.

7. Street Lighting

Little Rock's new street lighting program is certainly one of the biggest projects in the city and probably one of the largest of its type in the country. Now underway, with a planned completion in 65 months, is the program of lighting all major streets in the city with mercury vapor lamps and all outlying areas with at least one street light per intersection so that no city street will be in darkness during the night hours.

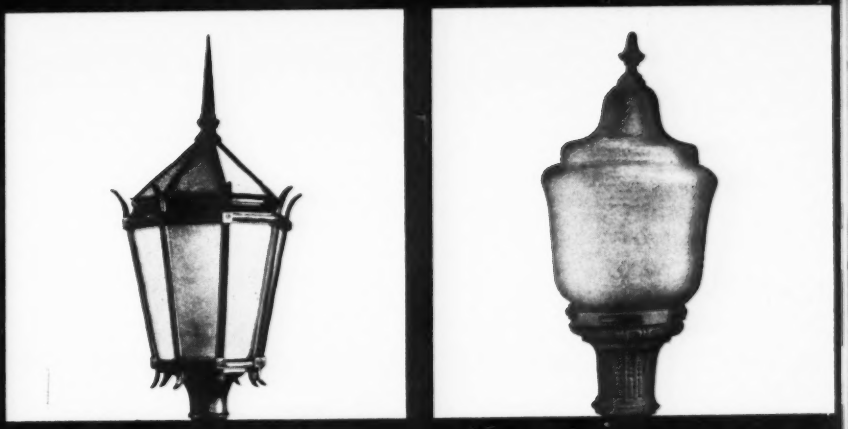
New streets are being installed in the City of Little Rock and many streets are being widened from two to four lanes. Some of the work is already completed and in the next seven months an additional three miles of street will have been widened. The Highway Department Bureau of Public Roads is committed to install the new 8th Street Expressway to run the full east-west length of the city, and the new 3rd Bridge Expressway, an interstate highway, is now under construction and is slated for completion in the next three to five years.

A new Master Street Plan has been adopted by the city requiring that all future streets be provided with sufficient width of right-of-way, in order to eliminate the expense of acquiring and clearing additional right-of-way after the streets are installed.

It is now possible to drive in the City of Little Rock without courting a nervous breakdown and additional improvements are made each day. If there is a single decisive factor in this "new look" to traffic, it is the enthusiasm with which the citizens of Little Rock have embraced the changes. They have been patient with temporary inconveniences, generous with praise and eager to cooperate. The great improvement in Little Rock's traffic situation could not have been made without the help of its citizens.

Complete view of LaHarpe Boulevard paralleling Markham Street, one of Little Rock's main arteries. Broadway Bridge is in foreground followed by Main Street Bridge, then Railroad Bridge. In background are piers for new bridge on interstate expressway.

If your lighting equipment looks like this . . .



and your streets look like this . . .

then . . .

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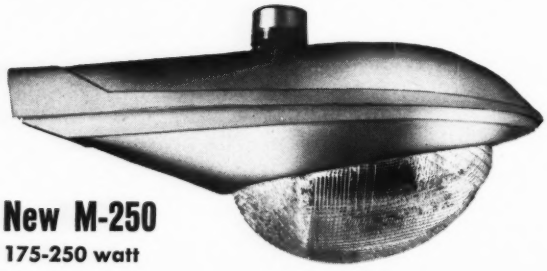
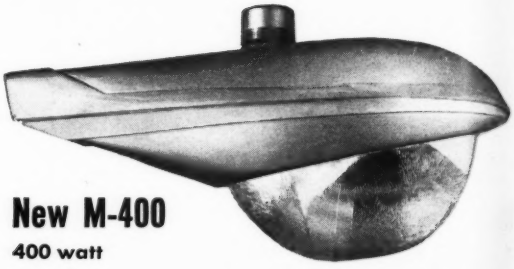
New beauty, safety, efficiency fo



New M-250
175-250 watt



New M-400
400 watt

New
700-10

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. . . LIGHT TRAFFIC STREETS . . .

. . . ENTRANCE AND EXIT RAMPS

For HEAVY TRAFFIC STREETS . . .

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Traffic News

Federal Highway Safety Board Proposed

A bill (HR 8328) which would create an Interdepartmental Highway Safety Board composed of the Secretary of Commerce, the Secretary of Health, Education and Welfare, the Secretary of Defense, the Chairman of the Interstate Commerce Commission and the Chairman of the Federal Communications Commission has been introduced by Rep. Seymour Halpern (R., N.Y.).

The Board would be authorized to use the personnel and facilities of the departments concerned and would be empowered to appoint and fix the compensation of "such other employees as it determines necessary to carry out its functions."

The functions and duties of the Board would include: (1) to encourage departments and agencies of the Federal Government to conduct studies and research in connection with highway safety; (2) to consult and cooperate with state and local highway and traffic officials and agencies and with citizens, groups and organizations in the development and promotion of highway safety activities, including activities designed to encourage states and localities to adopt uniform laws and ordinances in the area of highway safety; and (3) to perform such other functions and duties as the President may direct for the purpose of more effectively coordinating the policies, programs and functions of the departments and agencies of the Federal Government relating to highway safety and promoting cooperation with state and local highway and traffic safety agencies and officials.

The Board would be directed to make periodic reports to the President and Congress and make such recommendations for administrative action and legislation as determined necessary to further highway safety. The President's Committee for Traffic Safety would be designated to advise and consult with the Board to assist it in carrying out its functions.

At the time he announced that he was drafting the proposed legislation, Rep. Halpern, in a speech on the House floor, urged Congress to consider: (1) establishment of performance and safety standards for cars sold in interstate commerce; (2) creation of a Uniform Laws Division in the Motor Carrier Section of ICC to provide technical assistance in the adoption of uniform vehicle laws; (3) inclusion of driver training projects as part of Federal-aid to education programs to the states; and (4) tightening up safety standards in highway construction to be adhered to by the states in Federal-aid projects.

HR 8328 has been referred to the House Committee on Interstate and Foreign Commerce, but as yet no hearings have been scheduled.

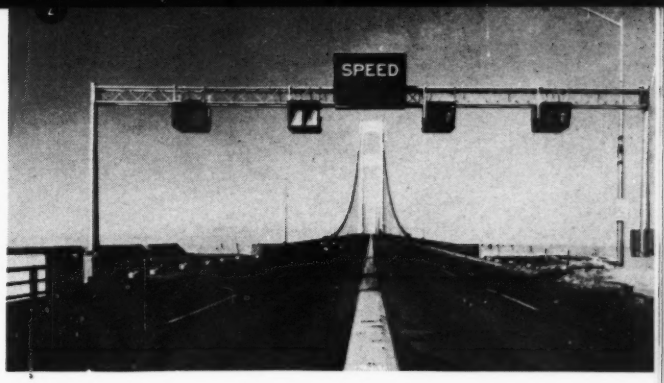
Presentation of the Traffic Engineering Award to the City of Charlotte, N. C., is made to H. J. Hoose, Traffic Engineer. Left to right: David M. Baldwin, Executive Secretary of the Institute, H. J. Hoose, and Robert A. Burch, North Carolina State Traffic Engineer.

Fred W. Hurd, District Director of the Institute of Traffic Engineers, presents Governor Foster Furcolo its award for 1958 to the Massachusetts Dept. of Public Works for outstanding performance in Traffic Engineering."

This is the fourth time in the last five years that the Traffic Division of the Mass. Dept. of Public Works has been the recipient of this nation-wide award.

Left to right: Chief Engineer Edward J. McCarthy (Mem. ITE), formerly traffic engineer of this Department, Gov. Furcolo, Fred Hurd, and Bernard B. Twombly, Traffic Engineer.

1958 ITE Traffic Engineering Award to State of Oregon—From left: W. C. Williams, State Highway Engineer, OSHD; Warne Nunn, Governor's Executive Assistant; Matthew C. Sielski, ITE President, of Chicago.



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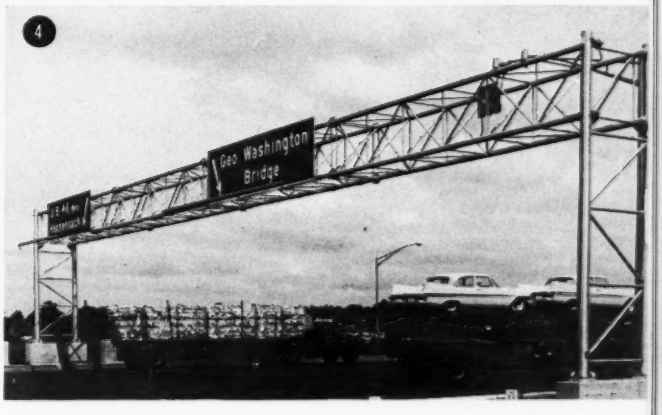

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LOCATION: James River Bridge
CONSULTING ENGINEERS: Parsons, Brinckerhoff, Hall & MacDonald

2. INSTALLATION: 56 foot aluminum box truss signal span
OWNER: State of Michigan, Mackinac Bridge Authority
LOCATION: Mackinac Bridge, St. Ignace, Michigan
CONSULTING ENGINEERS: D. B. Steinman

3. INSTALLATION: 90 foot aluminum box truss sign span
OWNER: North Carolina State Highway Commission
LOCATION: Interstate Route 40

4. INSTALLATION: 110 foot aluminum box truss sign span
OWNER: New Jersey Turnpike Authority
LOCATION: Exit 18, New Jersey Turnpike
GENERAL CONSULTANT: Howard, Needles, Tammen and Bergendoff
CONSULTING ENGINEERS: Barnett & Herenchak

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Training Program for Police Group Begins

Thirty-five men have been selected in nation-wide competition to attend the 1959-60 Traffic Police Administration Training Program at the Traffic Institute of Northwestern University.

The nine-month training program—only one of its kind—begins September 17, 1959, and continues through June 13, 1960.

Thirty of the men were awarded grants-in-aid by the Insurance Institute for Highway Safety, Washington, D.C., recently organized by a group of insurance companies which write some 80 per cent of U. S. automobile policies. Five were declared eligible to attend as tuition-paying students.

From 1936, when the Traffic Institute was established, to this year, these grants-in-aid were made by the Kemper Foundation for Traffic Safety, sponsored by the Lumbermens Mutual Casualty Company and American Motorists Insurance Company, Chicago. These and more than 500 other casualty companies now are members of the new Insurance Institute for Highway Safety.

The grants-in-aid for the 1959-60 training program range in value from $795.00 to $1,650.00.

The 35 men chosen for specialized training in traffic police administration represent 21 municipal police departments, eight state police and highway patrol organizations, one county road patrol, the Port of New York Authority, Guam, and Venezuela.

The Traffic Institute's two-semester course in police traffic supervision is designed especially for executive and administrative personnel of police agencies and includes more than 1,200 hours of classroom study and discussion, work projects, and field study trips. The four main areas of subject matter covered are: non-police highway transportation agencies and problems, functions of traffic police, management of police service, and pertinent general education subjects.

Representing the three participating agencies on the Board of Selection which named the 1959-60 Class were: Prof. Norton E. Long, Political Science Department, Northwestern University (University); Paul J. Price, chief of police, Dayton, O. (International Association of Chiefs of Police); and W. Dean Keefer, safety engineering consultant, Lumbermens Mutual Casualty Company (Insurance Institute for Highway Safety).

The 35 men chosen successfully completed a selection process which included aptitude tests, personal interviews, and consideration of such factors as the extent of the accident and congestion problem in the applicant's community and his department's plans for profitable use of his training.

The 1959-60 course will be the Traffic Institute's 34th in traffic police administration. Eight hundred and sixty-three men have completed the previous 33 courses. In addition, more than 15,000 others in traffic work have received Traffic Institute training in courses, conferences, and seminars at Northwestern and in state and regional programs throughout the country.

Joseph E. Havenner (left) immediate past president of the Institute of Traffic Engineers, presents Sacramento's Mayor Clarence L. Azevedo (right) with the ITE certificate of recognition for traffic engineering activities during 1958. Looking on is Dudley F. Stevens, city traffic engineer.

Sacramento Bee Photo

41 Engineers Study Under IRF Sponsorship

Forty-one engineers from 28 countries will study advanced highway and traffic engineering under the sponsorship of the International Road Federation during the 1959-60 school year.

The IRF Fellowship Program, started in 1948, now totals 214 engineers from 60 countries, and includes many of the leading highway engineers of the world.

More than 50 of the IRF graduates are in traffic engineering practice, including some 22 in Europe alone. Of the eight countries in South America with IRF-trained traffic engineers, one, Uruguay, has a woman traffic engineer. She is Ivonne Rainusso, traffic engineer of the City of Montevideo.

Of this year's group, 39 will study in the United States and two in Great Britain.

Browder Elected President IES

Joe B. Browder, Atlanta utility executive, has been elected president of the Illuminating Engineering Society.

Mr. Browder, who is assistant to the vice president in charge of sales and sales manager for the Georgia Power Company, is presently completing a two-year term as vice president of the society.

Other top national officers elected by mail ballot of the membership include James R. Chambers, sales manager, lighting products division, Appleton Electric Manufacturing Company, Chicago, vice president for a two-year term, and Charles W. McCormick, commercial sales manager, Connecticut Light and Power Company, Berlin, Conn., general secretary. G. Franklin Dean, supervising engineer of lighting service, Toronto Hydro-Electric System, Toronto, Ont., Canada, was re-elected treasurer. Each will serve for one year.

New Action on Accident Prevention

Faced with a possible all-time record traffic death toll of approximately 40,000 this year, the President's Committee for Traffic Safety is calling for immediate stepped-up action in all phases of accident prevention.

The critical nature of the situation is emphasized, the Committee warns, by the forecast of traffic safety experts that the 1960 toll may be still higher — possibly 41,000 dead — unless the trend can be reversed promptly.

The Committee's statement, issued through its chairman, William Randolph Hearst, Jr., explains:

"This alarming development is largely attributable to the enormous increase in accident exposure, due to the increase in the number of vehicles and the greater travel that has accompanied the Nation's recovery from the 1958 recession.

"But, in addition, it is estimated that the death rate per 100 million miles of travel, after a steady decline during the post-war years, will rise fractionally to 5.7 compared with the all-time low of 5.6 in 1958. The prospective total toll of dead is too appalling to neglect.

"In approximately two-thirds of the fatalities, violations of traffic laws are involved — whether because of unfamiliarity with these laws, or willful disregard of them. This means that there is need for improvement in the knowledge of a great many drivers and the attitudes of a great many others if officials are to be able to carry out the necessary corrective program.

"Any substantial and continuing success in coping with tragedy on our highways calls for fair, firm enforcement of sound, uniform traffic laws and ordinances in every State and community.

"Such a program requires traffic courts that dispense fair and impartial justice; reasonable but strict requirements for obtaining and retaining a driver's license; and development, by all States and communities, of adequate and uniform accident reports.

"The program needs to be buttressed, also, by periodic inspection of all motor vehicles; nationwide instruction of young people in driving practices and attitudes; and progressive improvement in the safety features of motor vehicle design.

"The Committee believes that these tested techniques, which are set forth in its Action Program, can produce success in the field of traffic safety."

51st Annual Governors' Conference Action

At its 51st annual meeting held recently in San Juan, Puerto Rico, the Governors' Conference adopted three resolutions on traffic safety and highways. A continuing committee on the problems was established.

Governor J. Caleb Boggs of Delaware was elected chairman of the Governors' Conference. Next year's meeting will be in Glacier National Park, Montana, June 26-29.

RESOLUTIONS

Highway Safety

WHEREAS, increased motor vehicle travel in all the States during 1959 has resulted in an increase in traffic accident fatalities, with the prospect of a national toll of 40,000 deaths this year, an all-time and intolerably high record; and

WHEREAS, traffic experts forecast that unless this trend is promptly reversed, the 1960 toll will be even higher, possibly reaching 41,000; and

WHEREAS, road and street use is expected to continue its rapid expansion in order to provide transportation services to a growing economy, with the number of motor vehicles in the Nation increasing from 68 million today to about 100 million in 1970, and the number of licensed drivers from 80 million to about 110 million;

NOW, THEREFORE, BE IT RESOLVED by the Fifty-first Annual Meeting of the Governors' Conference that the States are urged to implement fully the balanced, coordinated program set forth in the 1956 Report of the Governors' Conference Committee on Highway Safety.

Federal Highway Funds

Of all the vital issues considered by the Governors' Conference at San Juan the financing of highway construction is considered to be the number one problem facing the states for which an effective solution must be found. The states have relied on the uninterrupted flow of federal funds as authorized by the 1956 and 1958 federal highway acts. In good faith they have made substantial commitments which, if the program is curtailed, could seriously jeopardize their respective fiscal positions.

We recognize that there exists a difference of opinion between the legislative and executive branches of the government with respect to financing the continuation of the program at the authorized level. This difference must be resolved to prevent the stifling of commerce, to promote highway safety and to protect the national security. To achieve that end, the Governors' Conference do hereby Resolve:

That the President and Congress are respectfully urged to come to an agreement on a program to provide sufficient funds to meet the current federal highway fiscal crisis; and

BE IT FURTHER RESOLVED that the Executive Committee of the Conference be directed to stand ready to join the President and the Congress in discussions leading to a satisfactory solution; and

BE IT FURTHER RESOLVED that copies of this Resolution be transmitted to the President of the United States, the President of the Senate and the Speaker of the House of Representatives.

Committee on Roads and Highway Safety

WHEREAS, the states have many problems in connection with financing, maintaining, operating and policing the nation's highways; and

WHEREAS, efforts to cope with traffic problems must be intensified as the number of motor vehicles and the number of licensed drivers increase; and

WHEREAS, certain highway safety activities have been tested by time and found to achieve a reduction in traffic accidents and fatalities; and

WHEREAS, it has been demonstrated that the introduction of safety devices and improvements in automobile design and equipment assist materially in reducing the severity of traffic accidents;

NOW, THEREFORE, BE IT RESOLVED BY THE Fifty-first Annual Meeting of Governors' Conference that the Chairman appoint a standing Committee on Roads and Highway Safety to concern itself with keeping under continuous scrutiny the various problems relating to highways and highway safety.

TECHNICAL PROGRAM

Monday

9:30 a.m. TECHNICAL SESSION No. 1

OPENING REMARKS: Matthew C. Sielski, President, ITE
PRESENTATION of Theodore Matson Memorial Award
PRESENTATION of ITE Past Presidents Award
KEYNOTE LUNCHEON SPEAKER: T. T. Wiley, Commissioner of Traffic, N.Y.C.

Tuesday

9:00 a.m. CONCURRENT MEETINGS OF TECHNICAL COUNCIL COMMITTEES *(Schedule to be announced)*

2:00 p.m. ANNUAL BUSINESS MEETING

Wednesday

9:00 a.m. TECHNICAL SESSION No. 3 *(3 concurrent sessions)*

A. Department #1

"Progress and Current Activities on Uniformity of Traffic Control Devices"—Wilbur S. Smith, Proprietor, Wilbur Smith & Associates, New Haven, Connecticut.
Discussion by Daniel J. Hanson, Traffic Commissioner, St. Louis County, Missouri.
"Needed Improvements in Traffic Laws and Ordinances to Meet the Needs of Traffic Operations in the Interstate System" — John H. Mitton, Traffic Engineer, D. C. Dept. of Highways and Traffic, Washington, D. C.
"New Developments in the Field of Roadway Lighting"—Charles H. Rex, Street Lighting Development Engineer, General Electric Company, Hendersonville, North Carolina.
"Professional Role of Traffic Engineers and Planners"—Alan M. Voorhees, Traffic Planning Engineer, Automotive Safety Foundation, Washington, D. C.

B. Department #3

"School Crossing Protection" — Robert D. Dier, City Traffic Engineer, Long Beach, California.
*"Warrants for Speed Zones"*A Panel Discussion—C. W. Prisk, Director, Highway Safety Study, U. S. Bureau of Public Roads; John E. Baerwald, Associate Professor of Traffic Engineering, University of Illinois; and Eugene V. Avery, Asst. Chief Engineer, Dept. of Public Works, St. Paul Minn.

C. Department #4

"Warrants for Yield Signs" — James H. Kell, Ass't Research Engineer, Institute of Transportation & Traffic Engineering, Berkeley, California.
"Warrants for Four-Way Stop Signs"—Sam Cass, Metropolitan Traffic Engineer, Municipality of Metropolitan Toronto, Ontario, Canada.
"Applications for Pedestrian Signals" — James B. Rudden, Ass't Commissioner, Department of Transit & Traffic, Baltimore, Maryland.

2:00 P.M. TECHNICAL SESSION No. 4 *(3 concurrent sessions—*

D. Department #2 *Dept. #2 followed by Dept. #6)*

"Findings of ITE Membership Survey"—William L. Carson, Traffic Engineer, American Automobile Association, Washington, D. C.

Registration Fee: $10.00 for ITE members, university personnel, students, ar

UAL MEETING

SEPTEMBER 14-17, 1959

Monday

2:00 p.m. TECHNICAL SESSION No. 2

"Operational and Planning Aspects of Urban Traffic Ways" —
Speakers: S. S. Taylor, Gen'l Mgr., Department of Traffic, Los Angeles, California; Robert F. Van Hoef, Community Planning Specialist, Michigan State Highway Dept.; Rex Whitton, Chief Engineer, Missouri State Highway Department; Edward Olcott, Ass't Chief, Planning Division, Port of New York Authority.

"Urban Transportation Administration"—Thomas J. Seburn, Associate Director, Yale Bureau of Highway Traffic, Conn.
"Prerequisites and Scopes of Examination for City Traffic Engineering Positions" — Henry M. DeNoble, Traffic Engineer, Little Rock, Arkansas.

E. Department #6

"Garage Operating Costs" — Eugene A. Barton, E. A. Barton and Associates, Cleveland, Ohio.
"Facilities for Express Bus Operation on Freeways" — William R. McConochie, Chief Engineer, De Leuw, Cather & Co., Chicago, Illinois.
"Planning and Design of Airport Terminal Parking Facilities" —Robert W. Harris, Associate Traffic Engineer, Bureau of Street Traffic, Chicago, Illinois.

F. Department #5

"Freeway Design as Affected by Costs" — John J. Dobelek, Traffic Engineer, Detroit, Michigan.
"The Study of Ramp Terminal Channelization"—Matthew J. Huber, Research Associate, Yale Bureau of Highway Traffic, New Haven, Connecticut.
"A Policy on Driveway Controls — Raymond J. Desjardins, Director of Transportation Division, Metropolitan Toronto Planning Board, Ontario, Canada.
"Planning Criteria for Urban Traffic Ways" — David W. Schoppert, Highway Transportation Engineer, Automotive Safety Foundation, Washington, D. C.

G. Department #7

"Pedestrian Signal Problems—Some Controversial Questions to be Resolved Before Writing a Specification" — Marble J. Hensley, City Coordinator, Chattanooga, Tennessee.
"Standards for External and Internal Illumination of Traffic Signs" — Richard I. Strickland, Ass't Chief, Traffic Engineering Division, Port of New York Authority and Irwin Hart, Winko-matic Signal Company, Lorain, Ohio.
"Sign Supports—Characteristics, Materials, Design Criteria and Costs" — Wm. F. Bauch, Jr., Engineer of Design, Illinois State Toll Highway Commission; George M. Webb, Traffic Engineer, California Division of Highways; and Wayne N. Volk, Engineer of Traffic Services, Wisconsin State Highway Commission.
"Traffic Signal Lens Colors"—Charles S. Michalski, Traffic Engineer, Citizens Traffic Safety Board, Chicago, Illinois.
"Paint Specifications for Smaller Communities" — Wayne N. Volk, Engineer of Traffic Services, Wisconsin State Highway Commission.
"Know Your Traffic Survey Devices" — E. Wilson Campbell, Chief Traffic Engineer, Chicago Area Transportation Study, Chicago, Illinois.

l, students, and representatives of governmental agencies; $20.00 for all others.

New Appointments

Gittens Now Director Penn-Jersey Study

Michael J. Gittens (Mem. ITE) has been made Director of the Transportation Section and Deputy Executive Director of the Penn-Jersey Transportation Study in Philadelphia. The study is supported by the Bureau of Public Roads, the State of Pennsylvania and the State of New Jersey with the cooperation of nine counties in the immediate area.

The design of the Study provides for a comprehensive analysis of all transportation facilities, a highway plan to meet traffic needs of the future, and recommendations with respect to the incorporation of transit in transportation and land use planning in the Philadelpha-Camden area. An appropriation of $2,450,000 has been set aside for the Study. It is anticipated that completion of the Study will require a minimum of three years.

Mr. Gittens was previously Traffic Engineer in the City of Pittsburgh for seven years and prior to that spent one year with the Allegheny County and sixteen years with the Pittsburgh Railways Company.

Jerome D. Franklin Now Public Service Director For Grand Rapids

Jerome D. Franklin (Mem. ITE), formerly city traffic engineer for the City of Grand Rapids, Michigan, has been named Public Service Director of that City. Mr. Franklin recently spent 27 months in Vietnam as traffic consultant under a joint Michigan State University International Co-operative association program.

City Manager Rypstra, of Grand Rapids, in announcing the appointment, stated that Mr. Franklin would have added duties as city-coordinator of the area's $30,000,000 expressway program.

Mr. Franklin has served as traffic engineer for Grand Rapids from 1949 to 1957 and developed the City's present traffic engineering program. A native of Newark, N. J., he is a civil engineering graduate of the Newark College of Engineering and took graduate studies in transportation engineering at Yale University. He worked two years for the New Jersey Division of Motor Vehicles prior to his employment by the City of Grand Rapids in 1949.

JOB CHANGES

James W. Federhart — formerly City Traffic Engineer in Saginaw, Michigan; now Partner with the Gregory Lumber & Construction Company, 1009 S. Henry Street, Bay City, Michigan.

Lewis R .Coyle—formerly Traffic Engineer with Tippetts-Abbett-McCarthy-Stratton in New York City, New York; now Traffic Engineer for Gannett Fleming Corddry & Carpenter, Inc. in Harrisburg, Pennsylvania.

Earl T. George, Jr.—formerly Assistant Traffic Engineer with the City of New Orleans, Louisiana; now Professional Engineer III with the Louisiana Department of Highways, Road Design Section in Baton Rouge, Louisiana.

Donald H. Weisstuch—formerly with Barstow, Mulligan & Vollmer in New York, New York; now Traffic Engineer with Arnold H. Vollmer Associates, 67 West 44th Street, New York 36, New York.

Earl C. Williams, Jr.—formerly Traffic Engineer with the City of Wichita Falls, Texas; now Chief of the Traffic Engineering Division Montgomery County, County Office Building, Rockville, Maryland.

TITLE CHANGES

Marshall Jacks, Jr. — is now Senior Assistant Traffic Engineer for the Department of Streets and Traffic in Detroit, Michigan; was Assistant Traffic Engineer.

Raymond H. Pow—is now Town Planning Officer for the Auckland City Council in Auckland, New Zealand; was Assistant Town Planning Engineer.

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Strictly Business

Steel Nubbins Reduce Skidding

Traffic safety officials in Cincinnati have just released the ten-year record of skidding accidents on the Vine Street Bridge over Mill Creek which indicates that steel nubbins installed on this heavily-traveled open steel-deck span in 1953 have reduced accidents by 75 per cent.

There were anywhere from three to seven accidents per year between 1949 and 1952, at an average of 4.8 a year during the five-year period which ended in 1953, before installation of the 1/4-inch steel studs cut that year's rate to one. During the last five years, accidents have been held to an average of 1.2.

The studs were installed with Nelson semi-automotic stud welding guns at a rate of 260 per man per hour, and traffic on the bridge was maintained without interruption.

"Since there has been no other modification of the bridge, it would seem safe to assume that the improved accident rate is attributable to the much better traction afforded by the studded grill deck," says W. C. Wichman, Cincinnati's director of public works. "There is a resulting reduction in the tendency to skid or lose control of the vehicles crossing the structure."

Recent examination showed that after five years of service there was no visible wear of the studs, which were

furnished by the Nelson Stud Welding Division of Gregory Industries, Inc., Lorain, Ohio and installed by Monning Welding Company of Cincinnati.

Reflectorized Signs

Porcelite, the trade name for a new, permanent reflectorized surface applicable for porcelain enamel signs of all types, is being introduced by California Metal Enameling Company, world's largest maker of porcelain enamel highway signs.

Porcelite, the company states, is a brand new concept in the night-time reflectorization of porcelain enameled signs. All components are completely inorganic, assuring everlasting brilliance with no fading, peeling or discoloration. Durability and long-life are guaranteed by the manufacturer.

The result of over 5 years of Cameo laboratory development work, the Porcelite exclusive process imbeds small (approximately .003″-.005″ diameter) clear glass spheres in a matrix of highly opaque, thin ceramic glass. Careful heating produces a permanent chemical union between the glass beads and the porcelain coating.

Special ceramic glazes hold the beads so that a brilliant uniform, reflective surface is obtained under headlight or other illumination.

The glass spheres can't come loose, the manufacturer states, because the porcelain glaze produces an inseparable glass-to-glass bond.

A series of tests by the State of California Division of Highways reveals that white Porcelite returns up to 12 foot-candles of light at 100 feet. This is a result of the extremely high index of refraction of the special glass spheres used, and the thin ceramic glaze that holds these spheres in place.

Minnesota Mining Promotes Douglas And Landen

Promotion of Don J. Douglas to general sales manager, reflective products division, has been announced by Minnesota Mining & Manufacturing Co.

Douglas, who joined 3M in 1930 as a laboratory technician, was national commercial markets sales manager for the reflective products division before assuming his new duties. In his new post he is responsible for the sales of all 3M reflective products in both government and commercial markets.

Don J. Douglas

Promotion of J. C. Landen to Western regional sales manager for government and railroad trades, reflective products division, is also announced.

Landen, who joined 3M in 1950 as a reflective products salesman, was San Francisco branch sales manager for government and railroad trades before assuming his new duties. In his new post he will headquarter in St. Paul.

Transistorized Receiver-Decoder

Motorola has added to its radio traffic control equipment line a completely transistorized Intersection Receiver-Decoder, designed to minimize any on-street maintenance. The inherent reliability of transistors themselves greatly reduces the need for receiver servicing.

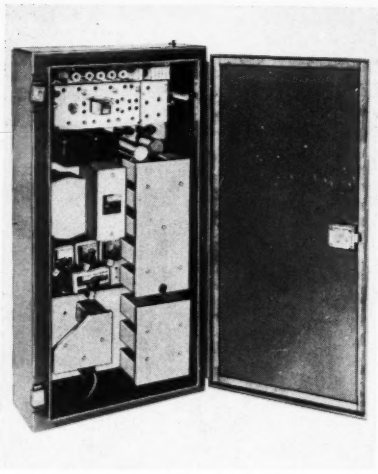
In the Motorola Traffic Control Systems the Intersection units receive and decode the signals from an automatically programmed radio base station. Signal voltages are fed into the standard traffic signal controller at the intersection, providing offset synchronization and time cycle changes to coordinate traffic flow.

The new unit, which contains a radio receiver, power supply, relays and tone determining elements is capable of providing supervision of any three of 17 different time cycles at an intersection.

The new equipment is designed to eliminate on-street maintenance. The transistorized receiver requires minimum maintenance. All tone relays, filters and other components are covered, sealed, plug-in devices that are easily replaced and interchanged. This design not only speeds maintenance, but also facilitates system expansion and changes.

To allow easy removal, the complete receiver, power supply and decoder chassis are each attached to a single aluminum plate by quarter turn fasteners and electrical plug-in connectors. The aluminum plate itself can also be easily disconnected from the unit's housing.

The housing is of rugged, lightweight aluminum with stainless steel fittings. It measures only 24 x 14 x 7 inches and can be universally mounted on a pole or pedestal. The entire unit



weighs less than 60 pounds. The equipment is available with a completely transistorized receiver for use in any frequency band including 450 and 960 megacycles.

More than 150 of the new units are being installed in the Washington, D.C. radio control system. Others will be used in the New York City and Wayne County, Michigan systems, also being supplied by Motorola.

New Template Developed By NU Traffic Institute

A new template for making scale diagrams of accidents and other layouts of cars and trucks on roads and drives has been produced by the Traffic Institute of Northwestern University.

It is for use by police traffic personnel, accident investigators for insurance companies, traffic engineers, safety engineers, safety officials, and others.

The device, 10 x 3¾ in. in size, is an improved version of the template developed in 1952, according to the Institute.

Designer of the template is J. Stannard Baker, the Institute's director of research and development. He explained its use in this way:

"Using template and a pencil, scale diagrams of accidents and other traffic situations can be drawn quickly and accurately to scales of 10 and 20 feet to an inch. The template is available also for the metric system. Typical vehicles and other traffic elements can be outlined with the cut-outs. Most

In the demonstration above, you see an unretouched photo of a Lyle Sign bent 160 degrees. By magnification, you see that the resilient enamel baked on by Lyle shows no cracking or marring whatsoever!

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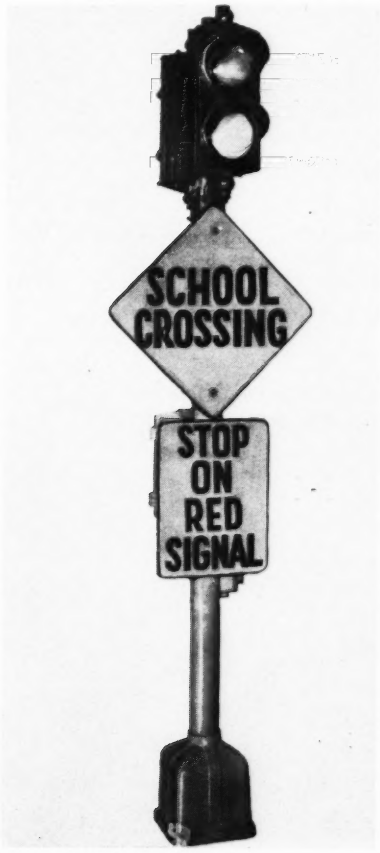
road situations can be drawn with the scales and curves.

"The template provides a useful nomograph for solving problems involving the relationships of speed and stopping distance. Also, it has been designed to serve as a simple clinometer for measuring grades and superelevations."

A 20-page illustrated instruction manual is included with the new template. It describes in detail how to use all the template features and how to estimate speeds from skidmarks.

The template is priced at $2.00. When five or more are purchased, the cost is $1.60 each, available from the Traffic Institute, Northwestern University, 1904 Hinman Ave., Evanston, Ill.



School Traffic Signal System

Crouse-Hinds has introduced a new School Traffic Signal System, known as Type PA-30. It is designed for operation at mid-block crossings. These locations are safer places for children to cross streets, as they do not have to avoid turning traffic.

During the morning and afternoon, the signal operates automatically in response to push buttons. At other periods, the signal remains on normal highway "Go" indication.

On non-school days, the signal remains on highway "Go" indication at all times. When school reopens, operation resumes automatically in accordance with the previously set schedule.

An electronic controller, exclusive with the Crouse-Hinds PA-30 School Traffic Signal System, provides simple timing adjustments. Control knobs are easily turned to desired settings; no changing of gears or setting of dial keys is required.

For complete information on Type PA-30 School Traffic Signal System, write Crouse-Hinds Company, Syracuse 1, New York.

TENNANT Traffic Line Eraser shaves off paint in a single pass.

For fast removal of traffic lines

Now you can remove old traffic markings *quickly* . . . permanently . . . and at *low cost.*

The TENNANT Traffic Line Eraser's steel cutters shave off painted lines *in one operation* . . . without damage to concrete surface underneath.

In fact, tests show new markings can be expected to last *up to 4 times* longer . . . because the Traffic Line Eraser removes oxidized concrete scale. Assures a firm bond for new paint; helps reduce flaking.

The TENNANT Eraser works on either concrete or asphalt surfaces.

- Usually removes 4 to 10 feet of markings per minute.
- Covers path up to 8" wide.
- Cost averages between 1¢ and 4¢ per foot of line removed.
- Compact: operates in traffic. No need to block off streets.
- Easy and safe to use.

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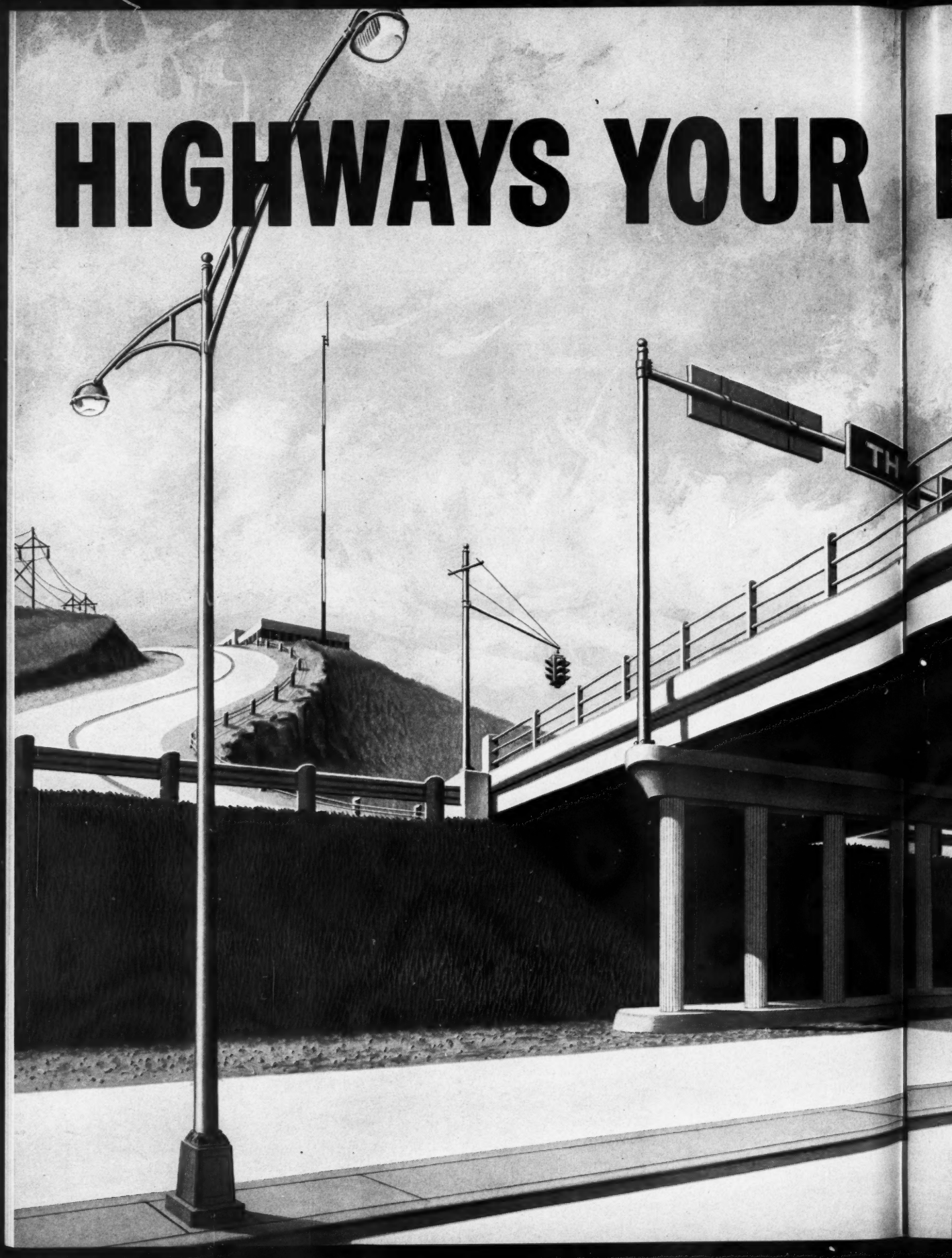
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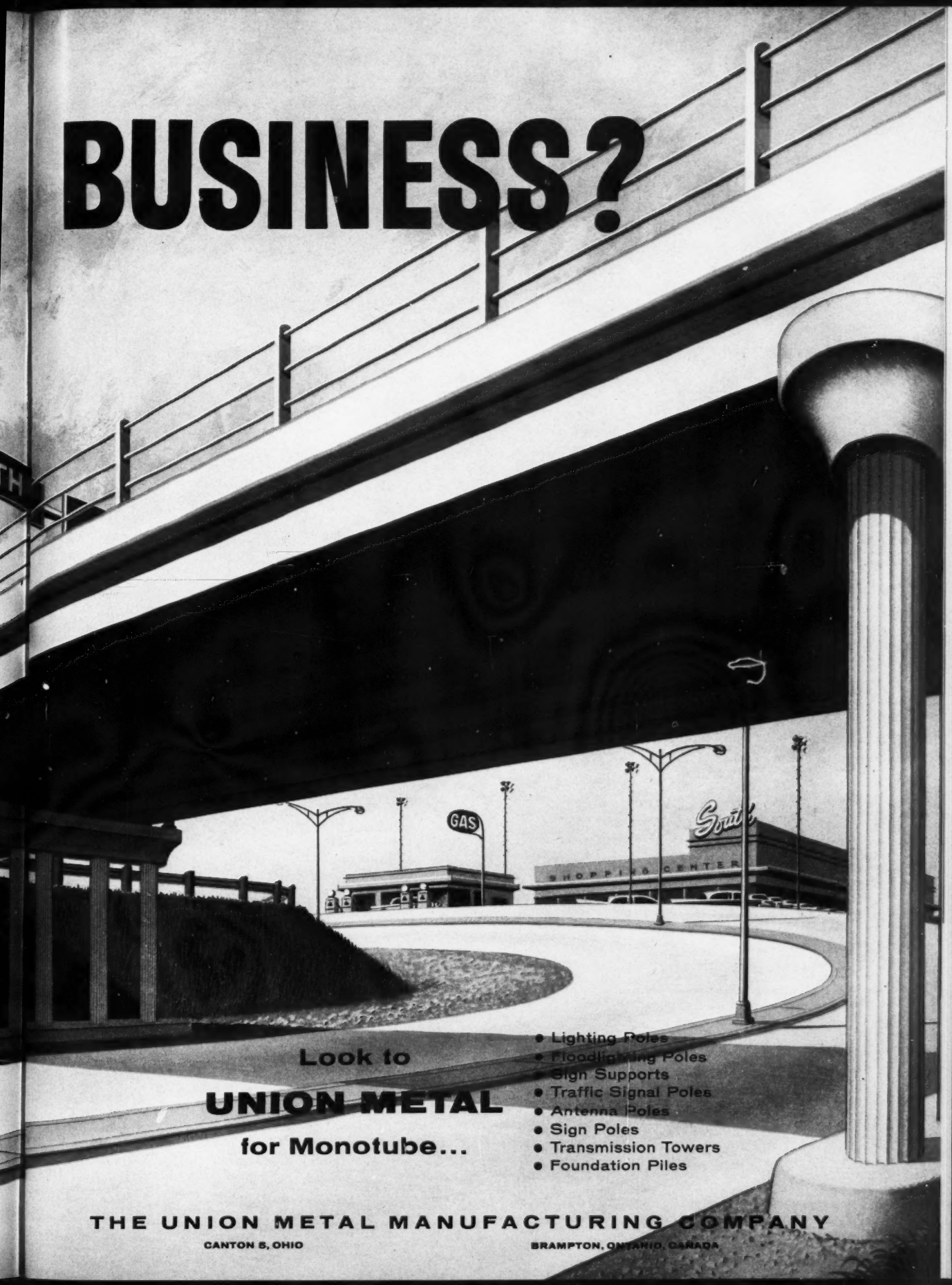

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Standard Coil Sells El-Tec

The El-Tec Division of Standard Coil Products Inc. has been sold and is now a New Jersey Corporation. All manufacturing and development will be in the new factory at Dunellen, N.J.

The transfer of ownership included rights to corporate name of Electronic Protection Inc. and trade name El-Tec, all patents and manufacturing rights, and FCDA and FCC assignments.

Engineering will be directed by Mr. Wm. DeVoiserre, a specialist in circuitry development, and Mr. J. Becker, specialist in UHF research.

National sales will be through the E. Allen Miller Co. of Caldwell, N. J.

Blackhawk Markets New Traffic Island Light

Blackhawk Industries of Dubuque, Iowa have announced addition of a new traffic island marker light to their product line. This all weather traffic light, which beams an amber light in four directions, will be sold under the trade name "Guardlite."

In commenting on the new light, Kenneth D. Rose, General Manager of Blackhawk Industries said: "We feel this is an important improvement in vehicle and pedestrian safety, both for city or highway intersections. The Blackhawk Guardlite clearly identifies traffic islands, safety and loading zones in fog, rain or snow. It can be seen from a great distance, helping to slow and direct traffic in time to avoid sudden stops and confusion."

The new Blackhawk Guardlite is constructed of three, extra heavy, grey iron castings, head, tapered base and octagonal sub base. Overall height of the light is 9¾ inches, overall weight of the head is 58 lbs. The head section is held in place by fitting securely over the top of the tapered base. There are no bolts or screws, the weight of the head itself holds it down. The tapered base support fits over the sub base and is held in place by cleats. The Guardlite is treated with a special metal primer to resist moisture and corrosive chemicals.

Construction of the Blackhawk Guardlite prevents serious damage to a car should it accidentally strike the light, according to the company. The head section is free standing and rolls off. The fuse automatically shuts off the current. The only damage to the Guardlite itself in event of such a collision is to the lens, lamp and shear pin, all of which can be readily replaced.

Finished in traffic yellow with amber lens, the Blackhawk Guardlite is available for a 110 volt system or a 6.6 amp. street series lighting. There is a flasher attachment available if the Guardlite is to be used for traffic islands in particularly hard-to-see locations.

New Publications

Traffic Accident Studies—1958

Bulletin 208, Highway Research Board, National Research Council, 2101 Constitution, Washington, D. C. 83 pp. $1.60

This bulletin contains six papers on various phases of traffic accident studies as presented at the 37th Annual Meeting of the Highway Research Board, as follows:

"Traffic Accidents and the Quality of Traffic Flow," by Bruce D. Greenshields.

"Economic Costs of Motor Vehicle Accidents," by Robie Dunman.

"Statistical Evaluation of Traffic Accident Severity," by Edmund J. Cantilli.

"An analysis of One-Car Accidents," by Richard W. Bletzacker and Thomas G. Brittenham.

"Predicting Traffic Accidents From Roadway Elements on Urban Extensions of State Highways," by J. A. Head.

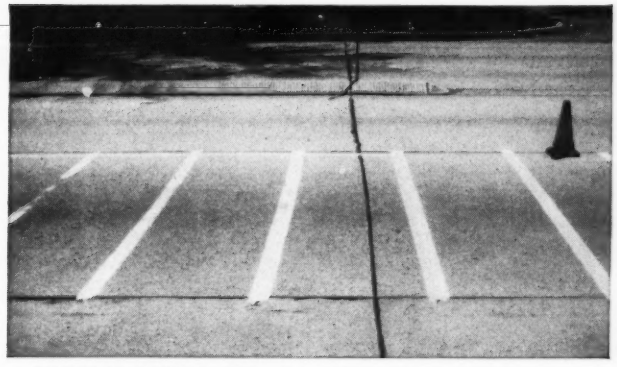
"Sampling Procedures for Determining Speed Characteristics at Rural Locations: A Progress Report," by Joseph W. Guyton and A. K. Stonecipher.

Accident Facts

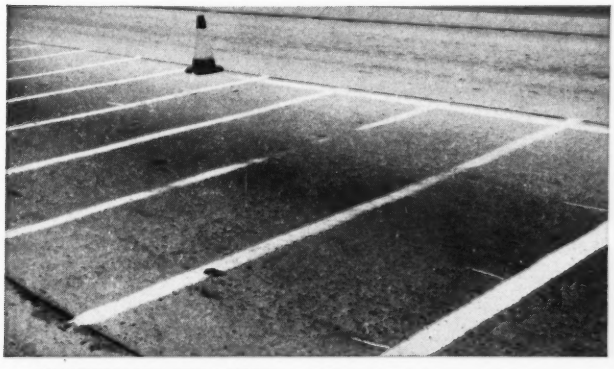
National Safety Council, 425 N. Michigan Ave., Chicago, Ill. 98 pp., $1.85 per copy, special rates for quantity.

This booklet contains facts and figures compiled to give all people—engineers concerned with the problems and laymen — vital statistics on accidents. Of particular interest to traffic engineers is the section on motor-vehicle accidents for 1958 which presents facts and statistics on such subjects as "Motor-vehicle Death Rates by States," "Day - night Mileage Death Rates," "Trends in Urban and Rural Death Rates," "Circumstances Contributing to Accidents," "Vision Obstructions in Motor-Vehicle Traffic Accidents for 1958," among others.

APPLICATION — Paints were applied on both concrete and asphalt in Delaware and New Jersey with respective traffic counts of 12,000 and 6,000 vehicles daily.



THREE MONTHS LATER—After this brief period of wear, the poorer formulations already begin to fall by the wayside.



ANOTHER MONTH LATER — Differences in paint wearability continually become more pronounced. Tests were continued until less than 40% of lines remained.

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This much we can tell you: Over a two-year period we have tested a total of 52 formulations and *all*—even the best—can benefit by what these tests revealed. These data are available, in complete detail, to all our customers who use Parlon. Such information helps our customers do a better job of meeting the needs for a "speed plus durability" traffic paint—*fast dry for nonsmear, long life for safety and economy*. It helps you who use our customers' paints because it insures that you are receiving a formulation based on the latest technical data and testing information available.

Cellulose Products Department

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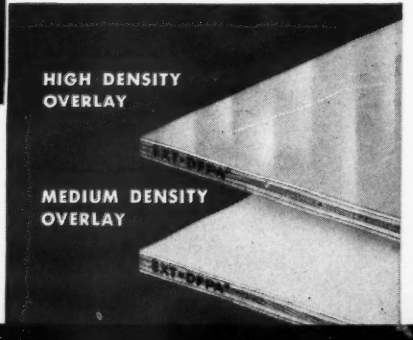
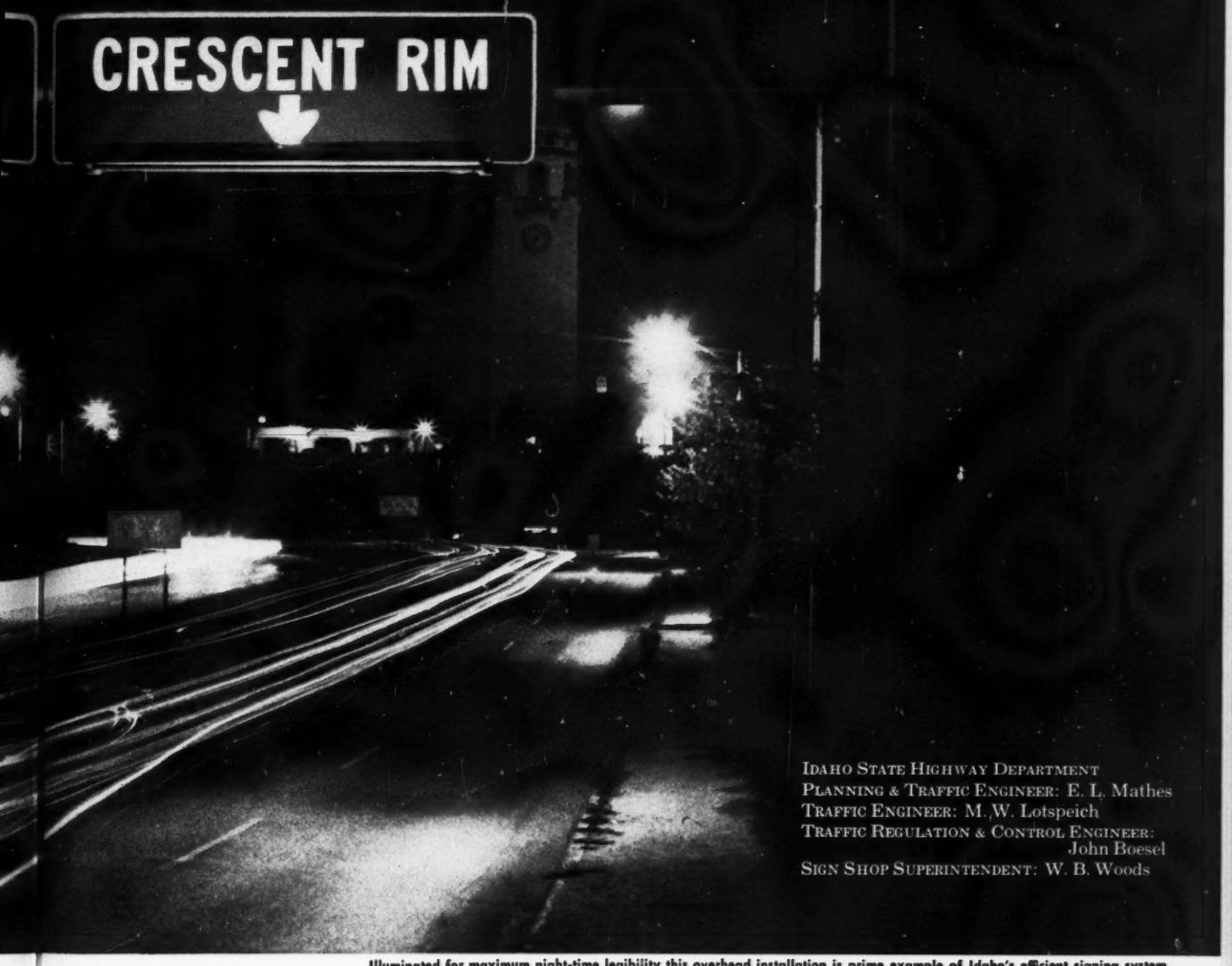
On standard black-background informational signs, reflective letters are applied directly to black High Density overlaid plywood, eliminating painting.



High Density overlaid plywood needs no protective painting; color (black, brown or amber) is in the overlay. Medium Density is for plain painted signs. Base panel is waterproof Exterior plywood.

and replacement costs of overlaid fir plywood



IDAHO STATE HIGHWAY DEPARTMENT
PLANNING & TRAFFIC ENGINEER: E. L. Mathes
TRAFFIC ENGINEER: M. W. Lotspeich
TRAFFIC REGULATION & CONTROL ENGINEER: John Boesel
SIGN SHOP SUPERINTENDENT: W. B. Woods

Illuminated for maximum night-time legibility this overhead installation is prime example of Idaho's efficient signing system.

OVER 7,000 MODERN OVERLAID PLYWOOD SIGNS of every type and size help make motoring a pleasure on Idaho's scenic highways. They also help the state highway department do a better signing job at considerable savings to taxpayers.

Until 1953, when Idaho switched to High Density overlaid plywood, maintenance and repair had been a constant problem. Weathering is unusually severe; temperature ranges from 115° above to 40° below zero. Vandalism damage from hunters in isolated areas and resultant progressive deterioration were particularly troublesome. Under these rugged conditions, overlaid plywood has performed consistently well—particularly in areas where signs are subjected to unusual abuse. As a result, maintenance costs have dropped sharply.

Initial fabrication and installation costs are also less. Records at the Idaho sign shop in Boise show a completed overlaid plywood sign costs between 10 and 15 percent less than aluminum.

DOUGLAS FIR PLYWOOD ASSOCIATION
TACOMA 2, WASHINGTON
—a non-profit industry organization devoted to research, promotion and quality control

DFPA TESTED QUALITY

Technical Notes

Technical Council Meets In Eugene, Oregon

The Technical Council met in Eugene, Oregon on June 16 and 17, 1959, and took the following action:

1. Adopted a new set of "Administrative Details of Procedure" to help organize and expedite work of the Technical Council.
2. Amended the Council's "Rules of Procedure" to require approval of a technical report by a two-thirds vote but providing that this might be by a mail ballot.
3. Accepted a full report of Department No. 1 (printed in the August issue of TRAFFIC ENGINEERING). Decided to ask the Seminar Steering Committee to make suggestions for revisions in the Uniform Vehicle Code growing out of discussions at recent Freeway Seminars.
4. Heard Department No. 2 report progress by Committee 2B on development of a report on civil service requirements for four levels of city traffic engineering positions, with plans to look next at county positions.
5. Agreed to the organization of two new committees in Department No. 2, one a short-term group to analyze the recent questionnaire survey of ITE members, and the other a committee to study traffic engineering functions in small and medium-sized cities. Approved W. L. Carson as chairman of the former (2G) and T. J. Seburn as chairman of the latter (2H).
6. Reviewed a report on "One-Way Streets" submitted by committee 3-A, and agreed that the report did not adequately cover the subject "Policies on One-Way Streets." The Secretary was asked to attempt to edit the report and publish it as a bulletin-type document with new title and format. The Department Head was asked to discharge the committee with thanks.
7. Heard that W. L. Carson had been named chairman of Committee 3-C and voted to direct that the committee develop a report which would suggest warrants for speed zones, making full use of Illinois data now being collected as well as any other new facts.
8. Voted to discharge with thanks Committee 3-D, since the committee's report has now been published. Heard that committee 3-B, School Crossing Protection, expects to have a final report by the end of the year.
9. Accepted a report from Department No. 4, which indicated that September reports were expected from Committee 4-A, Definitions and Warrants for Pedestrian Signals; Committee 4-B, Warrants for Yield Signs; and committee 4-E, Warrants for Four-Way Stop Signs.
10. Heard from Department No. 5 that Committee 5-B, Channelization Design and Committee 5-G, Planning Criteria for Traffic Ways, are both planning reports in September. Heard also that committee 5-E, Driveway and Curb Cut Permits and Design, expects to have a preliminary report, but that Committee 5-A will probably not have a report this year.
11. Received a report from Department No. 6 that Committee 6-A, Parking, Garages; Committee 6-C, Bus Terminals, and Committee 6-D, Airport Parking Facilities, are all making progress with reports expected soon.
12. Received a report from Department No. 7 on work of its committees. Committee 7-A, Traffic Control Signals reported near completion of a report on specifications for the 12-inch lens, together with a report on the arrow lens. Work on pedestrian signals is progressing more slowly. Committee 7-C, Sign Illumination Techniques, reported near completion of a report on external fluorescent fixtures. Committee 7-D, Paint and Bead Specifications, reported a report out for review by a selected group of engineers, with submission expected by September. Committee 7-G, Traffic Survey Devices, reported progress with a final report expected in January. It was voted to discharge with thanks Committee 7-K, Design of Sign Structures, in view of the duplication of its work with a corresponding AASHO committee.
13. Complimented the Western Section on its technical program and urged this and other Sections to advise the Technical Council of plans for technical projects to achieve coordination and avoid unwanted duplication.
14. Reviewed and approved plans for the technical program at the 1959 Annual Meeting. Established a schedule for Departmental meetings during the program.
15. Asked development of a set of instructions for technical committees on what is desired in various types of reports such as standards, specifications, warrants, techniques, procedures, recommended practices, and others.
16. Agreed that there was a need for better instructions to Institute members serving on committees of other groups, with a probable need to formalize the existing relationship in many cases.
17. Agreed that work of the Technical Council needed to be better publicized. It was urged that a page in the magazine be devoted each month to the work of the Council and the several Departments.

Positions Available

RIVERSIDE COUNTY, CALIFORNIA

Position: Traffic Engineer—to provide traffic engineering advisory service to the County Road Commissioner in the development of a fast expanding urban county in Southern California.
Requirements: Equivalent to a degree in civil engineering and three years of professional engineering experience.
Salary: $7,296 to $9,060 with excellent fringe benefits.
Apply: Riverside County Personnel Office, Courthouse, Riverside, California.

CITY OF CHARLOTTE, N.C.

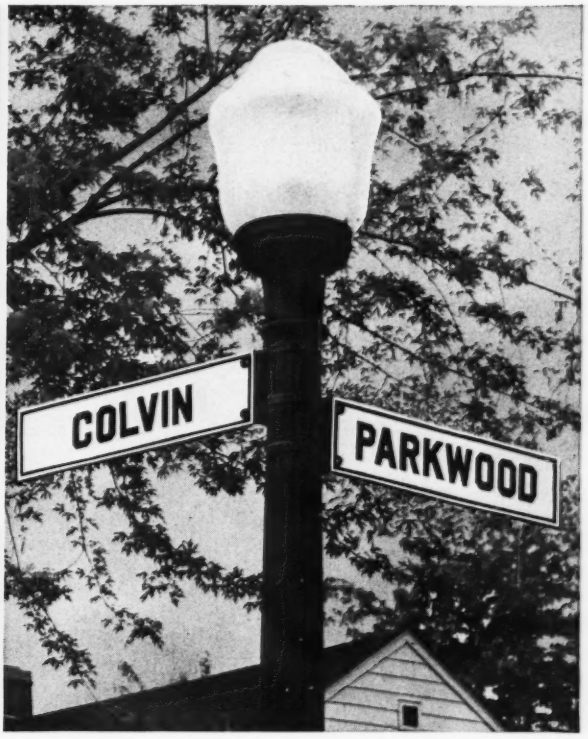
Position: Assistant Traffic Engineer
Requirements: College graduate with major course work in engineering; or experience in traffic engineering and traffic control; or any equivalent combination of such education and experience.
Salary: $500 month with advances based on job classification merit system.
Apply: H. J. Hoose, Traffic Engineer, 600 E. Trade St., City Hall, Charlotte, N. C.

PHILADELPHIA, PENNSYLVANIA

Position: Supervising Traffic Engineer
Requirements: Responsible for evaluating existing transportation facilities and supervising the design of highway and public transportation networks. Should be familiar with route location pro-

(Continued on page 58)

Cast aluminum street signs like these were installed in Tonawanda, New York, 30 years ago . . . one of the first such installations in America. They're still going strong today.



Modern signs of aluminum sheet now grace Tonawanda's newer street corners. Today, virtually all of the township's sign needs are served by lightweight, rustproof aluminum.

30 YEARS LATER: THE DESIGN HAS CHANGED . . . THE **MATERIAL** REMAINS THE SAME!

"No need to sell *us* on aluminum!" says Russell Corrie, Township Superintendent, Tonawanda, N. Y.

"We've seen its advantages demonstrated over three decades. For rustproof durability, quick installation and lifetime economy no other material can match aluminum."

KAISER ALUMINUM

THE BRIGHT STAR OF METALS

Let us make a bid. For expert service on money-saving aluminum signs, call the manufacturer, fabricator or Kaiser Aluminum sign blank jobber near you.

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Charlotte, Mich.
Paul H. Callender Co.
Chicago, Ill.
Bell & Gustus, Inc.
Federal Sign & Signal Corp.
Cleveland, Ohio
Osco Steel Co.
U. S. Steel Supply
Clinton, Mass.
Standard Sign & Signal Co.
Dallas, Tex.
All Quality Sign & Mfg. Co.
Elmira Heights, N. Y.
Eastern Metals of Elmira, Inc.
Evanston, Ill.
Northwest Screenprint Co.
Grand Prairie, Tex.
Sargent-Sowell, Inc.
Houston, Tex.
Western Sign & Supply Co.
Indianapolis, Ind.
Midwest Fire & Safety Equipment Co., Inc.
Lancaster, Pa.
John I. Nissly Co.
Little Rock, Ark.
Moody Equipment & Supply Co.
Marion, Ind.
Jim Newey and Assoc.
Metairie, La.
W & A Engineers
Miami, Fla.
Biscayne Fire Equipment Co.
Minneapolis, Minn.
Lyle Signs, Inc.
Monrovia, Calif.
Mask-Off Co.
North Tonawanda, N. Y.
Northern Electric Supply Co.
Overland, Mo.
Wiegand Mfg. Co.
Peoria, Ill.
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Tacoma, Wash.
Traffic Control Signs Co.
Wichita, Kan.
Miro-Flex, Inc.
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Send now for free brochure. Gives cost-saving facts and availabilities on traffic control signs made of Kaiser Aluminum. Mail coupon today.

Kaiser Aluminum & Chemical Sales, Inc.
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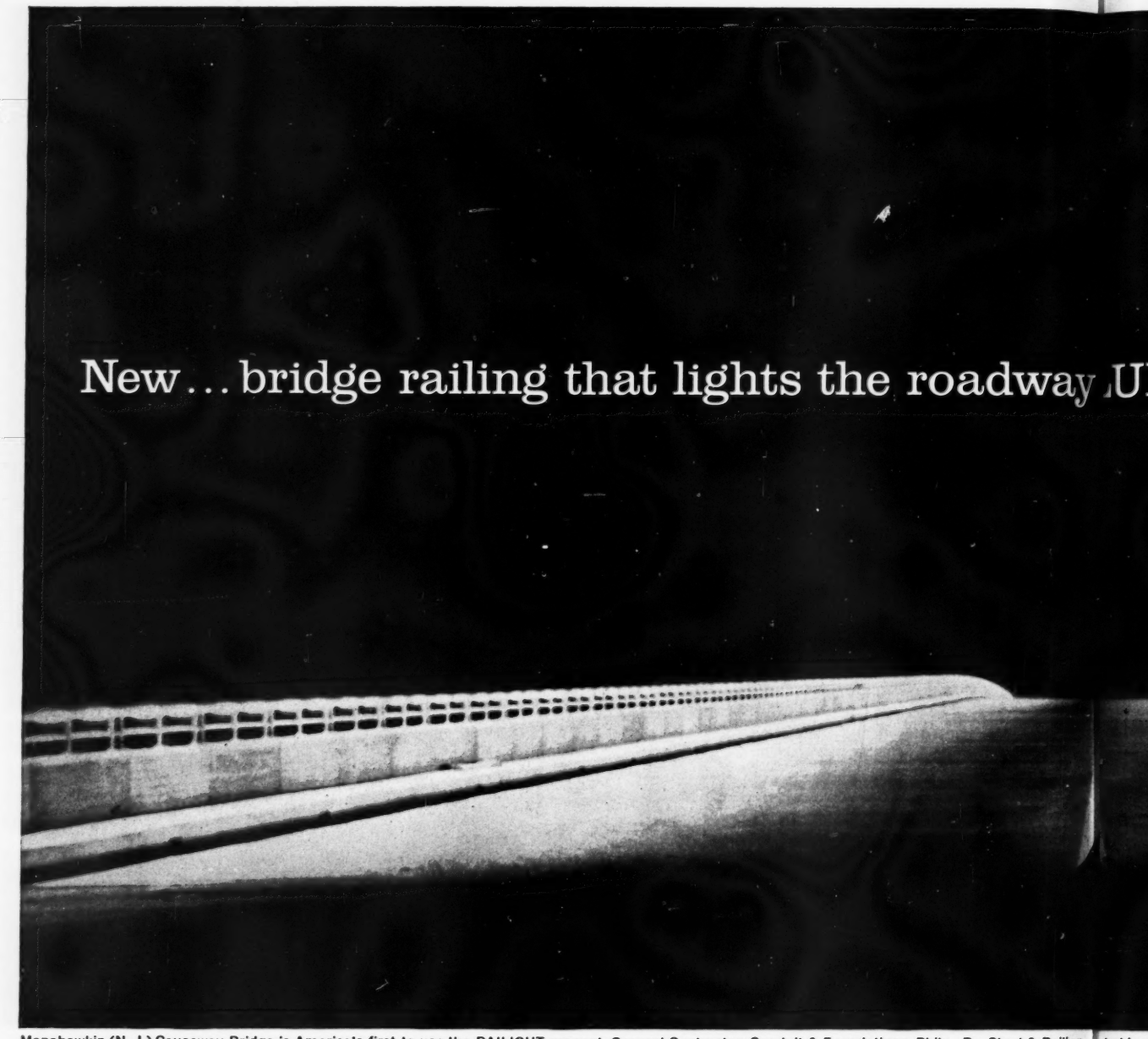
Oakland 12, California

☐ Please send me your free aluminum sign brochure
☐ Please have a representative call in person ☐ phone

NAME_____

ADDRESS_____

CITY_____ ZONE____ STATE_____



Manahawkin (N. J.) Causeway Bridge is America's first to use the RAILIGHT concept. General Contractor: Conduit & Foundations, Phila., Pa. Steel & Railing cted by

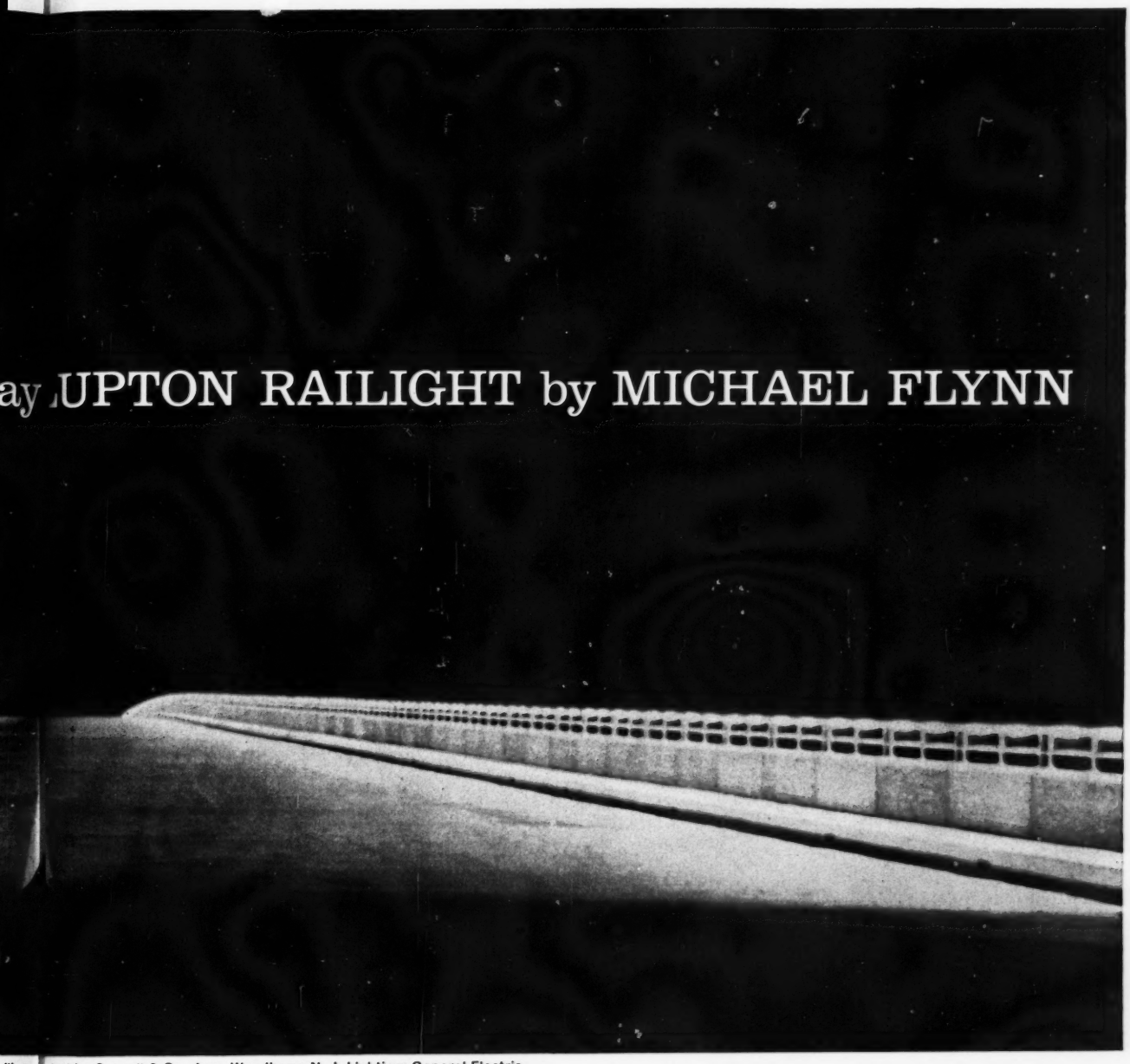
Totally new concept in roadway lighting...General Electric luminaires built into Flynn aluminum bridge railing

RAILIGHT*, available from Michael Flynn, makes roadway lighting a function of bridge railing. It is based on a "pet idea" of Dwight R. G. Palmer, New Jersey State Highway Commissioner, that was developed jointly by General Electric and Flynn in the custom-made Manahawkin (N.J.) Causeway Bridge.

Now in standard units for all roadway installations, RAILIGHT simplifies installation, makes driving safer and maintenance easier. It gives almost perfect uniformity of illumination along the roadway . . . makes it possible to use a light source of low brightness, which eliminates glare. All light is reflected and directed across the roadway for improved visibility in fog, snow or rain. Only the roadway is lighted, for most efficient use of candle power supplied.

Maintenance for RAILIGHT is greatly simplified, because of the accessibility of the luminaires, and the quality of the Flynn bridge railing. Non-rusting aluminum, it never needs painting. It's so tough and durable, nothing short of an accident can make replacement necessary. What's more, two men, with wrenches as their principal tools, can install lightweight Flynn aluminum. No overmanned crews, no lift trucks, no cranes are needed.

Write to Michael Flynn Manufacturing Company's Main Office for additional information on RAILIGHT



ailing cted by Cornell & Co., Inc., Woodbury, N. J. Lighting: General Electric.

—the far-reaching new concept in aluminum bridge railing design and function. Investigate *all* its possibilities and advantages. *Trademark

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Sales Offices:
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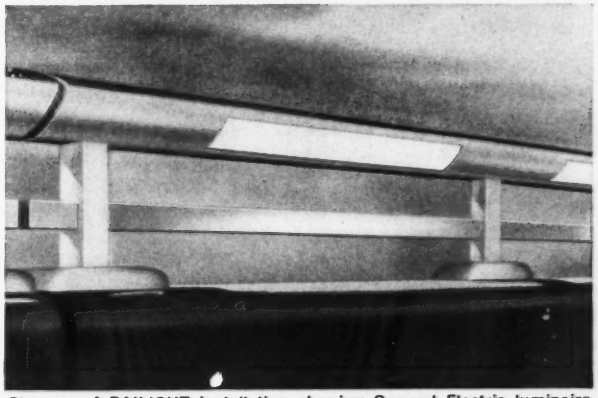
937 RADCLIFFE ROAD, TOWSON, MD.....Tel.: VAlley 3-2090
4232 HERSCHEL STREET, DALLAS 19, TEXAS.....Tel.: LAkeside 6-8757
Western Plant: City of Industry, Cal. (Los Angeles County) Tel.: CUmberland 3-6407



Closeup of RAILIGHT installation showing General Electric luminaire recessed in cut-out section of Flynn aluminum bridge railing. You enjoy wide latitude in center panel design.

Letters to the Editor

Dear Sir:

The newspaper story quoted below appeared in the "We The People" column of the "Tiger-Standard" of Hong-Kong. It is so mild mannered compared to the normal irate letters we see in this country that I thought somebody else might enjoy reading it. The poor fellow almost sounds apologetic about having to write the letter. Not once does he allude to being a taxpayer!

His problem, however, seems to be universal! We are setting up another committee in Santa Clara County to discuss surface interference and barricading. Chuck Haley's book will probably be the model.

Very truly yours,
ROBERT L. JAFFE
Traffic Engineer
Santa Clara, California

From the "Tiger-Standard" of Hong Kong:

To the Editor:

I am a regular reader of your paper, and, through the valuable medium of which, I wish to air some grievance.

I am a resident of the Western district, Victoria, Hongkong, and have been experiencing much inconvenience since the repair work of a portion of Ko Shing Street was started a week or so ago. The workers simply ignore the convenience of the regular users of the street by digging every available inch of the portion, including the pavements so forcing the users to take some other roads, which will unavoidably result in waste of time and much inconvenience.

I dare say that had this street existed in a zone where foreigners (mainly Englishmen) live, or in the places where tourists normally visit, convenience on the part of the users and expedition of repair work would simultaneously have been considered first by the authorities concerned.

In the circumstances, I, as well as the verbally complaining street users, humbly request the authorities concerned to relieve the "victims" from the above-mentioned inconvenience by either giving expedition to the repair work or leaving a passable path for the users.

WESTERN DISTRICT DWELLER

Dear Sir:

Reference is made to a table entitled, "Comparative Highway Lighting Policy," which appeared on page 36 of the 1959 July issue of Traffic Engineering. The publication of a table such as this, without any accompanying explanatory notes, is in my opinion not too desirable. It is subject to misrepresentation and false impressions.

One might get the impression that the lighting policy being followed in the majority of the States reporting is that they provide lighting in all unincorporated areas. Apparently, it was not the intent of the table to indicate the extent of highway lighting in the various States, but to merely list the participating agencies in cases where highway lighting is deemed necessary. Your attention is also invited to the fact that a highway must be on a Federal-aid route (primary, urban or secondary) to be eligible for participation in Federal-aid highway funds.

Very truly yours,
GERALD D. LOVE

* * *

Dear Sir:

In the July 1959 issue of Traffic Engineering, there appeared a letter from Mr. Robert J. Kelly concerning an illuminated "No Left Turn Device" now in use in Cleveland, Mr. Kelly invited comments.

Richmond also has many part time turn prohibitions. Many of these are the usual signs attached to signals or to poles. On occasion, they are misunderstood but are generally very effective. At those locations where heavy demand for the turn exists or where large numbers of transient drivers are affected, neon "No Turns" or "No Left Turns" are used. These signs reduce violations because they are clearly understood by all drivers. Other cities in the East have also used them to advantage.

They are operated by time switches individually or in groups as the situation requires. They can be programmed in the same manner as other control devices. The signs of this type in use in Richmond cannot be operated manually but twenty-four (24) hour emergency service assists police in unusual traffic conditions.

We believe that arrow indications should be reserved for permissible movements and not for those which are prohibited. There can be no question as to the intent of the wording "No Left Turn" but arrows (even

green arrows) do confuse drivers.

The "No Left Turn" sign is larger and therefore more expensive but we believe that effectiveness of the sign is worth the additional cost.

Yours Very Truly,
EUGENE J. CLIFFORD
City Traffic Engineer
City of Richmond, Va.

TRANSPORT

(Continued from page 16)

major public transport undertakings in the Copenhagen metropolitan area into one unified system, unfortunately, has not been put into effect. A committee has studied this question since 1950 but their proposal was not able to pass through the Danish parliament so this idea, for the present, is lying dormant. However, for a number of years there has been a special fare system that allows transfer from the rapid transit lines operated by Danish State Railways to surface lines operated by the Copenhagen Tramways. Private bus lines in the suburbs act as feeders to the State Railways and to city transit lines.

Conclusions

The author hopes that through this brief review, American traffic engineers and planners can get some idea of transport planning work in the major Scandinavian cities. Coordination is the key word. Coordinated surveys, planning, and operation of different modes of transport are given much stress. Planning activities take into account the need for both public and private transport, and the part taken by off-street rapid transit is of major importance. Perhaps the most significant feature of Scandinavian planning, from the standpoint of traffic engineers, is the recognition given to the interdependence of land use and transport. The stage of cooperation between city planners, traffic, and transit engineers that has been reached today in Scandinavia is an excellent model, worthy of being examined by traffic engineers in the U.S.A.

take a reading on this meter!

True value is measured by initial cost divided by the years of faithful service.

Hundreds of progressive municipalities have long discovered that only Duncan-Miller meters rate highest in value received. Here's why:

- No winding by city personnel. No inoperative meters due to run-down springs.
- Five-second "lift-out" mechanism. No screws, bolts or tools required. Speeds all maintenance.
- Effective screening of all bent coins and foreign objects drastically reduces jams and service calls.
- Last coin in meter is mechanically ejected into coin box when mechanism is lifted for service purposes. Eliminates temptation.
- Tough . . . rugged mechanism resists abusive treatment. Simple to maintain with minimum of parts inventory.
- Heavy duty, stainless steel and clock brass timer assures long serviceable life. No professional maintenance personnel or expensive factory services required.
- Hundreds of practical time and rate combinations for curb and off-street parking facilities.
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- Substantial housing casting highly resistant to attempts of vandalism. Strong, rugged door area protects meter revenue.
- Exclusive patented sealed coin box offers maximum security with only one locked box.

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DUNCAN PARKING METER

DIVISION OF MOTOR PRODUCTS CORPORATION

835 N. WOOD STREET • CHICAGO 22, ILLINOIS

TRAFFIC IN NEW YORK

(Continued from page 13)

firm donated its services in creating materials for use by the various media and placing these materials with TV, radio, newspapers, and other advertising agencies.

Through this program over 3½ million pieces of safety literature were distributed, over 2 million lines of safety information appeared in the metropolitan newspapers and more than 25,000 radio and television safety announcements were presented.

The theme of the campaign was CROSS AT THE GREEN, NOT IN BETWEEN. This slogan was selected because analysis of the accident statistics had shown that 70% of the pedestrian accidents could be attributed either to mid-block crossings or crossing against the red traffic signal.

After an educational period of several months, the Commissioner of Traffic promulgated regulations spelling out the duties and responsibilities of pedestrians with respect to drivers, and vice versa. A six-weeks' warning period preceded enforcement of the new regulations during which time over 200,000 warnings were issued. Since August, 1958, when enforcement started, over 50,000 pedestrian summonses have been issued.

In spite of long standing predictions that New York pedestrians would not cooperate with such a program or obey regulations, there was little resentment or resistance. New attitudes were developed by a very substantial portion of the population. Obedience to traffic signals greatly improved. The results are now beginning to be seen in the accident records. In 1958, there were fewer pedestrians injured in the City of New York than in any of the previous ten years.

The program has continued and is expected to result in further decreases in the pedestrian accident records.

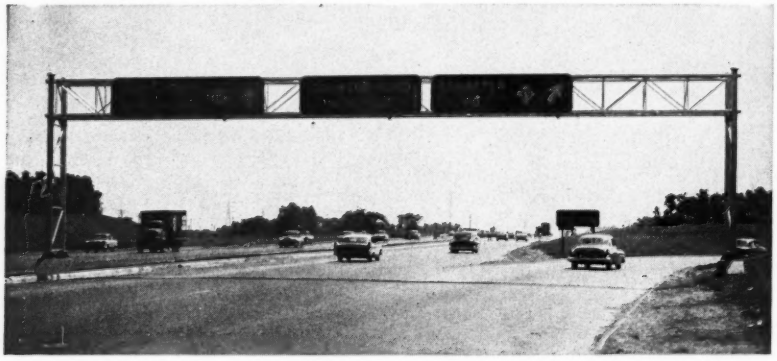
Other programs carried out by the Department include the School Safety Program, bus stop relocation, and channelization. Traffic safety plans have been prepared for each of the 1,100 public and parochial schools. These plans delineate the paths to follow and the location of signs, crosswalks, and other control measures. The Department established a policy of locating bus stops on the far side of the intersection, except where conditions dictated that a near-side location should be used, following requests from the bus companies. At one time, far-side bus stops had been the rule but the City had changed to near-side locations. The accident experience with the near-side locations was unfavorable. The far-side locations are generally proving more satisfactory, both as to accidents and traffic movement.

The many irregular intersections have required a widespread channelization program. This work is done by the Borough Presidents on the basis of plans prepared by this Department.

It is impossible, of course, to cover all aspects of the operation of the Department of Traffic of the City of New York in this article. To those who attended the Annual Meeting of the Institute of Traffic Engineers in 1950, there will be obvious changes to be noted. For one thing, vehicles are now required to operate at night with headlights, instead of parking lights, which has had an important impact in reducing accidents at night. The programs that have been established and are in process of being carried out have unquestionably resulted in safer, more expeditious movement of traffic on the streets and highways, in spite of the steady increases in traffic volumes of approximately 4% per year.

The relationships with the Police Department, City Planning Commission, Borough Presidents, Port of New York Authority, Triborough Bridge and Tunnel Authority, and other agencies have been steadily developed and improved so that the Department is influential in highway planning and design and in other activities having an effect upon traffic.

A look at the insufficiencies and shortcomings of today leaves no ground for complacency. There is still catching up with the past to be accomplished. The future is challenging, to say the least. But an objective look at the past shows that real accomplishments have been achieved and that traffic engineering is indeed on a sound and progressive basis in the City of New York.



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Planet's all-aluminum sign structures offer maintenance-free support for large overhead signs and lights. No painting is ever required and there are no rust problems. They're durable, too — hurricane force winds have no effect on Planet structures. Erection costs are low, and there's a minimum of traffic interference.

In accordance with your specifications, Planet will build and erect, or build only, overhead sign structures in any size or quantity. Write or call today.

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• Traffic & Safety Equipment
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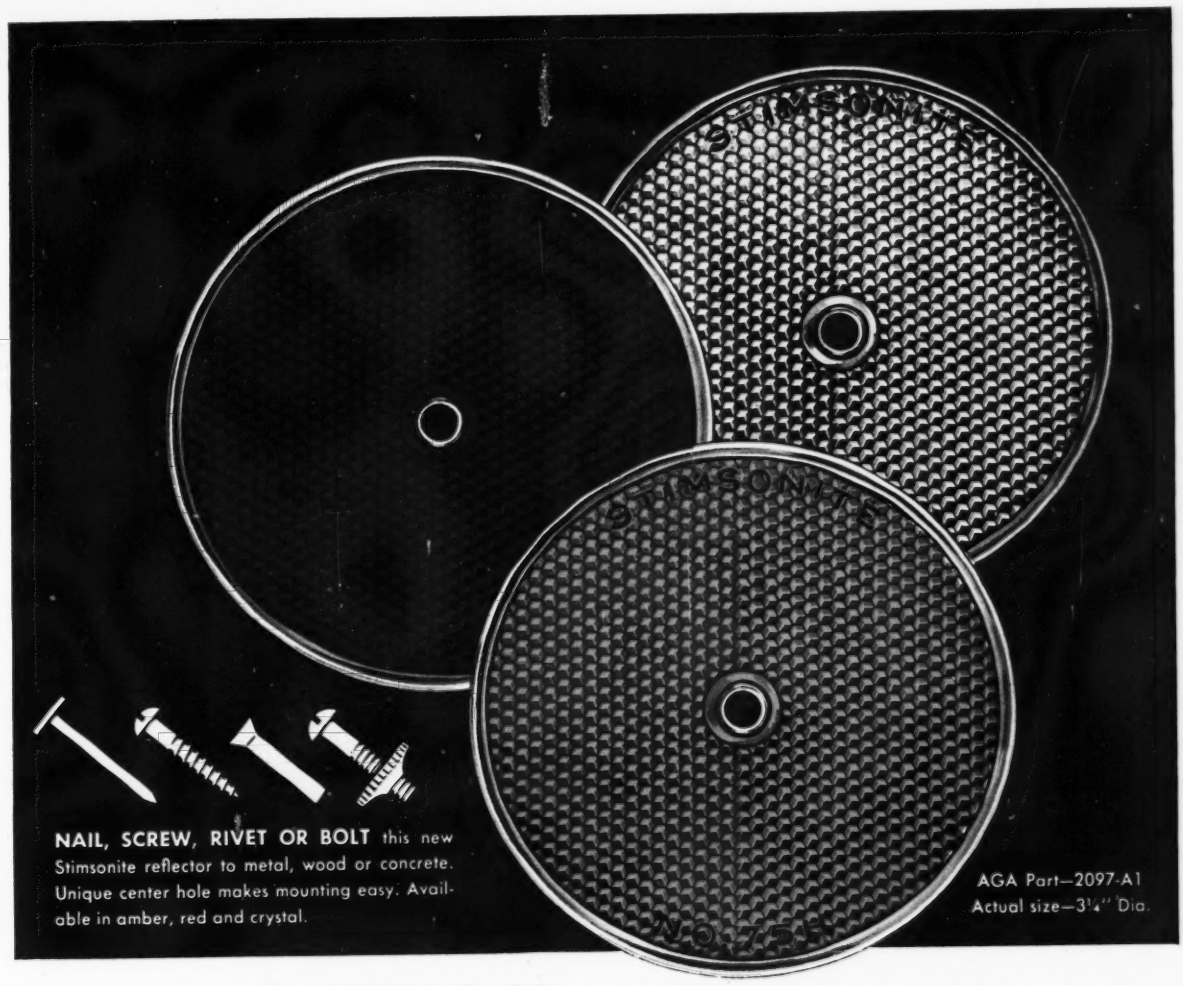
1842 SUNSET AVENUE LANSING, MICHIGAN

See Us at the I.T.E. Convention, Commodore Hotel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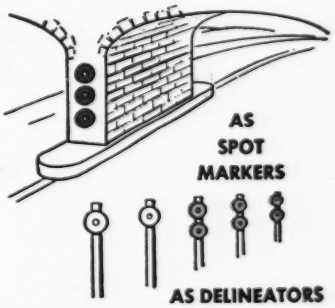
STIMSONITE
NAIL, SCREW, RIVET OR BOLT this new Stimsonite reflector to metal, wood or concrete. Unique center hole makes mounting easy. Available in amber, red and crystal.
AGA Part—2097-A1
Actual size—3¼" Dia.

NEW! STIMSONITE CENTER MOUNT REFLECTOR

The new Stimsonite reflector has a unique advantage permitting fast, easy mounting. You can use a screw, bolt, nail or rivet to mount this versatile new product on metal, wood or concrete.



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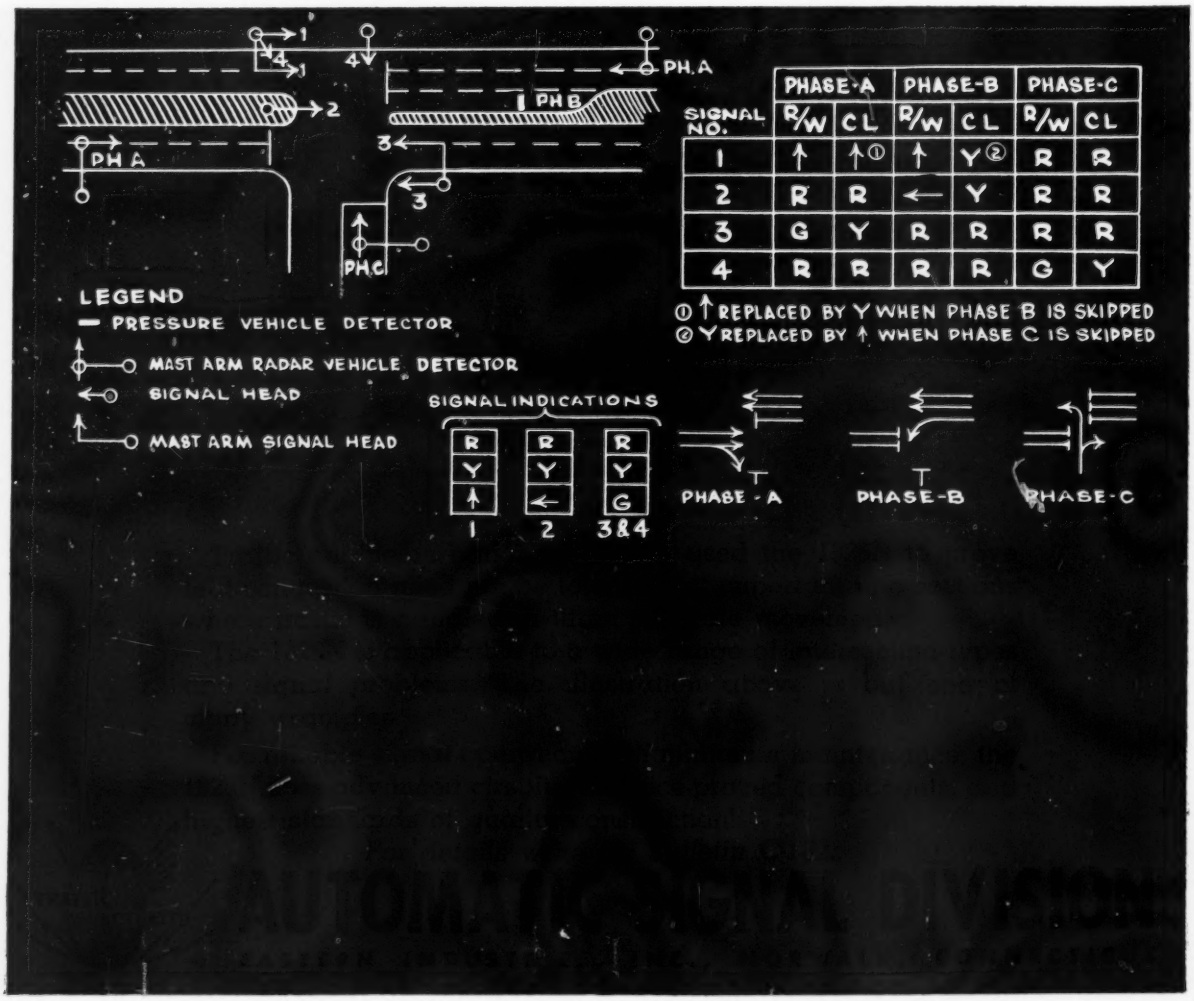
1826N SELECTIVE TRAFFIC SIGNAL OPERATION

Selective Signal Operation is traffic signal control that adjusts to moment-to-moment needs of the traffic itself rather than following a rigid, pre-set pattern of phase rotation and timing.

Model 1826N is a three-phase, full actuated signal controller. It provides selective signal operation by:

- giving green light only to intersection approaches that need it — skipping those momentarily clear of traffic.
- continuously dividing green light time according to the ratios of conflicting traffic flows — regardless of how widely and frequently those ratios vary.



SIGNAL NO.	PHASE-A R/W	PHASE-A CL	PHASE-B R/W	PHASE-B CL	PHASE-C R/W	PHASE-C CL
1	↑	↑①	↑	Y②	R	R
2	R	R	←	Y	R	R
3	G	Y	R	R	R	R
4	R	R	R	R	G	Y

① ↑ REPLACED BY Y WHEN PHASE B IS SKIPPED
② Y REPLACED BY ↑ WHEN PHASE C IS SKIPPED

Section News

OHIO SECTION

Officers for 1959-60:

James V. Musick ..... *President*
Robert E. Holaday ..... *Vice-President*
Thomas E. Young..... *Secretary-Treasurer*

PUERTO RICO SECTION

Officers for 1959-60:

Victor M. Labiosa ..... *President*
Ramiro Ramirez Carril..... *Vice-President*
William Vivoni, Jr..... *Treasurer*
Juan F. Vives Meléndez..... *Secretary*

TEXAS SECTION

The Texas Section held its fifth annual summer meeting on June 26th and 27th. Despite the fact that El Paso is just on the edge of the nation's second largest state, the members from "Deep in the Heart of Texas" made the safari, singly and in groups, to make the El Paso meeting attendance among the best in Section History.

Being situated not only on the International Border between the United States and Mexico, but also on the border between the Texas and Western Sections of I.T.E., many of our friends and associates from the Western Section also joined us at the El Paso meeting. With fifteen Western Section members and affiliates, representing cities and states in Arizona, California, Colorado, and New Mexico, total attendance reached ninety registered members, affiliates and wives. Special guests from the military establishments and other organizations in the El Paso area brought the attendance figure up to 102 persons.

Under the chairmanship of Bob Buckman, an excellent technical program was offered, with several State and City Traffic Engineers of the Western Section exchanging ideas, problems and solutions (?) with Texas Section members.

Socially, everyone enjoyed a trip on the last streetcar route in Texas, which starts going the wrong way on a one-way street in downtown El Paso, and ends up in Ciudad Juarez, Chihuahua, Mexico. At the end of the technical sessions, the group commandeered the Club Fountainebleau in Juarez where entertainment was offered by M. C. Tony Craig, former understudy for Mario Lanza and several other top singers in movies and on Broadway, and Huntz Hall of the well-known "Dead End Kids." Everyone seemed to enjoy himself, including our Executive Secretary, Dave Baldwin, who made a brief appearance on stage.

WESTERN SECTION

Officers for 1959-60:

Ross T. Shoaf ..... *President*
Charles E. Haley ..... *Vice-President*
Martin J. Bouman..... *Secretary-Treasurer*

Annual Meeting News

Following the Kickoff Luncheon on Wednesday, July 29th, which featured a keynote address by Matthew S. Sielski, President of the Institute of Traffic Engineers, the Annual Western Section Business Meeting got underway. The first item of major importance on outgoing President Bob Dunn's agenda was the Tellers Canvass of Ballots. The Ballot Tellers, after carefully recording the votes, later announced the results and the incoming slate of officers was made official.

The Secretary-Treasurer reported the financial status of the Section (we're solvent!) and submitted the 1959-1960 budget which was approved by the membership.

(Continued on page 56)

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ADDRESS_____
CITY_____ STATE_____

Yearbook Changes

ALLEN, Robert J. (Member)
Director, Arizona Traffic Safety Foundation, Room 217, 132 South Central Avenue, Phoenix, Arizona. ALpine 4-5494

ANDREWS, Basil R. (Associate)
Traffic Engineer, P.O. Box 1038, Savannah, Georgia. ADams 6-8965

BARTON, Eugene A. (Member)
President, E. A. Barton & Associates, Cleveland Transit Building, 1404 East 9th Street, Cleveland 14, Ohio. CHerry 1-0600

BROWN, Gerald R. (Junior)
Traffic Studies Engineer, Planning & Design Branch, Ontario Dept. of Highways, Parliament Buildings, Toronto 5, Ontario, Canada. EMpire 3-1211

COYLE, Lewis R. (Associate)
Traffic Engineer, Gannett Fleming Corddry & Carpenter, Inc., Engineers, 600 North Second Street, Harrisburg, Pennsylvania. CEdar 8-0451

DEEN, Thomas B. (Junior)
Director, Division of Transportation Planning, Nashville Traffic Commission, Second Avenue South & Lindsley St., Nashville, Tennessee. ALpine 4-1779 SEND MAIL: 1108 Sparta Road, Nashville 9, Tennessee.

DIERSTEIN, Philip G. (Junior)
Traffic Maintenance Supervisor, Illinois Toll Highway Commission, 22nd Street & Midwest Road, Hinsdale, Illinois. FAculty 3-9000 SEND MAIL: 4135 Clausen Avenue, Western Springs, Illinois.

FEDERHART, James W. (Associate)
Partner, Gregory Lumber & Construction Co., 1009 S. Henry Street, Bay City, Michigan. TWinbrook 3-7651

FRANKLIN, Jerome D. (Member)
Public Service Director, City Hall, Grand Rapids, Michigan. GLendale 6-6566

GEORGE, Earl T., Jr. (Junior)
Professional Engineer III, Louisiana Dept. of Highways, Road Design Section, Room 362, Baton Rouge, Louisiana. SEND MAIL: 3616 Airline Highway, New Orleans, Metairie, Louisiana.

GITTENS, Michael J. (Member)
Deputy Director, Penn-Jersey Transportation Study, Philadelphia State Office Bldg., 1400 Spring Garden Street, Philadelphia 30, Pennsylvania.

LASH, Michael (Junior)
Program & Planning Engineer, U. S. Bureau of Public Roads, 248 Farmington Avenue, Hartford 5, Connecticut.

LEVINE, Samuel J. (Associate)
District Traffic Engineer, Michigan State Highway Dept., 926 Featherstone, P.O. Box 3054, Pontiac, Michigan. FEderal 3-7801 SEND MAIL: 167 Moross, Mt. Clemens, Michigan.

(Continued on page 60)

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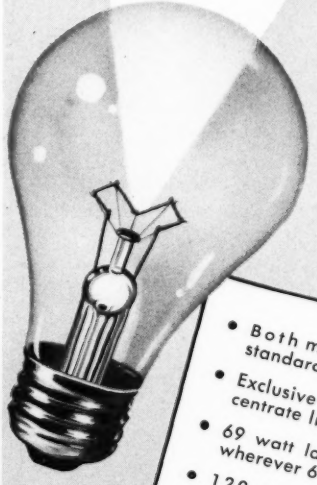

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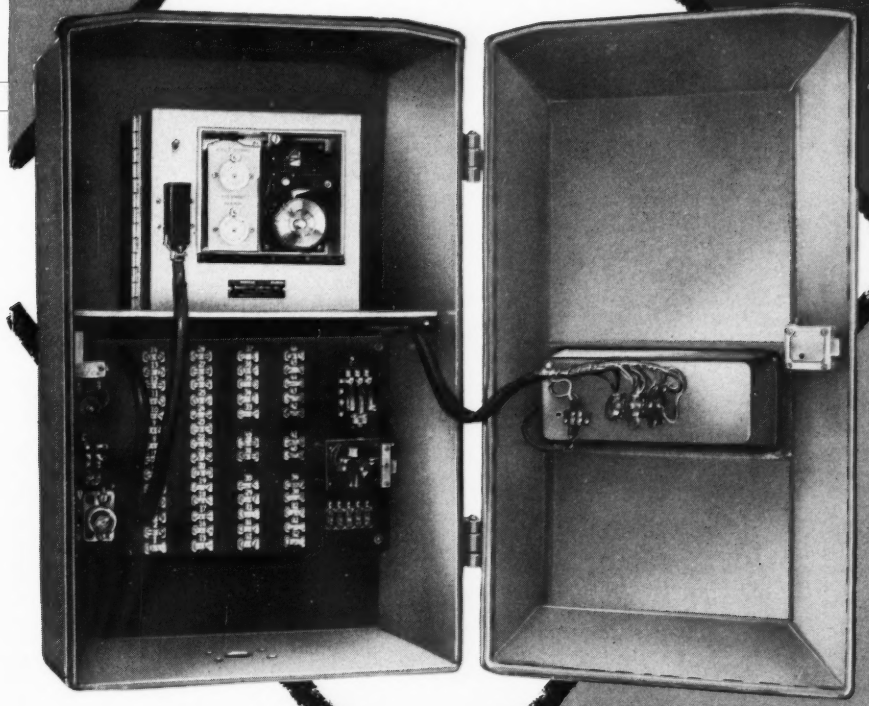

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SECTION NEWS

(Continued from page 53)

Executive Committee reports were next on the docket and here are a few of the highlights.

Area Coordinating Committee

Chairman Shoaf presented a proposed "Area Boundary Map" which delineates the various Areas within the Western Section. This should prove to be a valuable item during the coming years. Area Chairmen and Scribes were announced.

Editorial Committee

Chairman Bouman reviewed the activities of his committee during the past year which included, among other things, the preparation of a "Manual for Organization and Conduct of Annual Meetings." This Manual was approved by the Executive Board and will be reproduced and distributed in the near future. *The Editor of WesternITE for the coming year* was also introduced. He is *James H. Kell*, Assistant Research Engineer, ITTE, University of California. Last, but not least, the name of the winner of the Western Section Annual Award was revealed. The recipient of this $25.00 award was William Marconi, San Francisco Assistant Traffic Engineer, for his article entitled "Exit Scramble in San Francisco." Honorable mention went to Glen L. Clark, George M. Webb, Gerald R. Cysewski, Arnold A. Johnson, James H. Kell, and Martin J. Bouman.

Technical Division Committee

Chairman Moskowitz reported that his committee had instigated several research projects during the past year. One of the problems handicapping this committee is the lack of funds to obtain certain pieces of research equipment. Moskowitz expressed appreciation to the people who had furnished his committee data and assistance in recent months, and recommended that the committee projects be continued.

Membership Committee

Chairman Bruce gave a resume of the Western Section Membership Status and other accomplishments of his committee. He recommended certain modifications in the membership filing setup and urged all qualified persons to apply for membership in the Institute of Traffic Engineers. After this is accomplished, these persons are then eligible for membership in the Western Section. Present members who are eligible for advancement in grade of membership were encouraged to apply to the Institute for such upgrading.

Nominating and Resolutions Committee

Chairman Mathes announced that Denver has been selected as the site of the 1962 National ITE Meeting. The matter of selecting a site for the 1960 Western Section Meeting was referred to the incoming Executive Board for 60-day study. This Board asks that in view of the time limit, any Areas interested in hosting the 1960 Annual Section Meeting immediately present an application. The city selected will be announced in the next issue of WesternITE. The new Executive Board was also given the responsibility of selecting a meeting site for the 1961 Western Section Meeting. The Board has only 90 days to decide this question, thus it will be necessary for them to have all invitations by October 1, 1959.

Inter-Mountain Area

Probably the biggest news in the Salt Lake City Area is that on June 1, J. Edward Johnston became Chief Traffic and Research Engineer for the Utah State Road Commission. He was previously Highway Transportation Specialist with the U. S. Chamber of Commerce in Washington, D.C. Since his arrival, he has added two other traffic engineers to his staff, namely Jim Schmidt and Jack Noblitt. Jim graduated from Northwestern University this spring with a Master's degree in Civil Engineering, specializing in Transportation. He was formerly with the City of Seattle, Washington. Jack graduated from the Yale Bureau of Highway Traffic this spring, and was formerly with the Wyoming Highway Department.

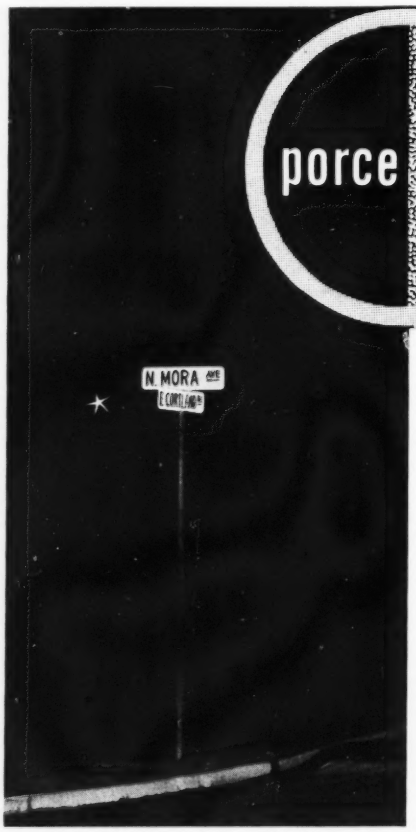
The responsibilities for traffic engineering functions are divided between Willard Kemp and Jack Noblitt. Willard is in charge of traffic control devices and Jack is in charge of traffic studies and geometric design.

Ed Johnston is instigating a comprehensive transportation study of the Salt Lake City Metropolitan Area to include all of Salt Lake County and the southern half of Davis County. Gerald Matthews has been appointed Manager of the Study and Jim Schmidt will assist him. Dale Burningham is Acting Chief Research Engineer.

Willard Kemp represented the Traffic Engineering Branch at the Billings meeting of WASHO.

The Special Studies Section under Charles Bertolina reports that its Truck Accident Cost Study is approximately 40% complete. The Study includes the cost of accidents to 6,000 registered trucks in Utah during 1957.

The City of Salt Lake is in the process of putting dual indications at downtown



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signalized intersections, painting exclusive left-turn lanes, and planning for the City's connections to the freeways which are now under construction.

Joe Lacy installed the first one-way signs in Englewood on Sunday, July 12th. This was on a five-block section and is the beginning of what is hoped to be a conversion during the next two years of the entire downtown area to a one-way grid system. Comments already received from the public indicate their enthusiastic acceptance and immediate desires to extend the one-way system. Joe also reports that he has recently purchased a new multi-purpose truck equipped to handle all types of traffic control operations from signing and pavement markings to signal maintenance.

Gus Byrom just purchased a new Kelly-Creswell striping machine for intersection work in Aurora. He has also ordered equipment needed to convert eight flashing school lights to the pedestrian push button type similar to that being used in Denver.

Our congratulations to Jim Small on his appointment as Director of Planning for the City of Denver.

Inter-Mountain Area Members attending the Western Section Convention in Seattle included J. Edward Johnston from Salt Lake and Al Pepper, Jack Bruce, and Jack Shockey from Denver.

Jack Bruce enjoyed a much needed and well deserved vacation on the West Coast following his attendance at the Convention.

San Diego Area

The new Area Chairman and Scribe for San Diego Area are John Tsiknas and Charles Strong, both of the Transportation and Traffic Engineering Division of the City of San Diego. John promises a lively program of parties, all of which will be held at his house and at his expense. Thank you very much, John! We appreciate your generosity.

Paul and Janice Fowler gave a dinner and baby shower honoring Tora Dobbins on June 18th. WITE's present were: Ed and Kathy Hall, Jack and Helen Henberger, Marty and Jeanne Bouman, Don and Janet Robbins, John and Anna Tsiknas, Bill and Annamae Schempers, and Charles and Leason Strong. Tora reciprocated by presenting Ben with a 6 lb. 6 oz. girl named Linda Jean on June 16th.

The word is out that R. B. "Lucky" Luckenbach and Bill Calland are working hard at their chosen professions this summer (fishing, not engineering). Bill has a new boat and is trying hard to top his big marlin of last year. Lucky has limited out on yellowtail on several occasions. His deep freeze is full of fish, as are all of his friends' and neighbors' freezers. If anyone would like a yellowtail, just contact the Old Master.

The San Diego City Transportation and Traffic Engineering Division moved to the Food and Beverage Building in Balboa Park on July 11th. The building is located at the intersections of El Prado and Zoo Drive. Please, no comments like "birds of a feather flock together" as they just don't apply. The baboons' cages are way over on the other side of the zoo and they're sensitive anyway.

The merging of Transportation Research and Traffic Engineering is proceeding smoothly under Ed Hall's direction.

Charles Strong and Keith Gilbert are completing extensive parking and traffic studies in Balboa Park. These studies are a part of the City of San Diego's contributions to a Master Plan Study of the Park that is being compiled by Harland Bartholomew and Associates.

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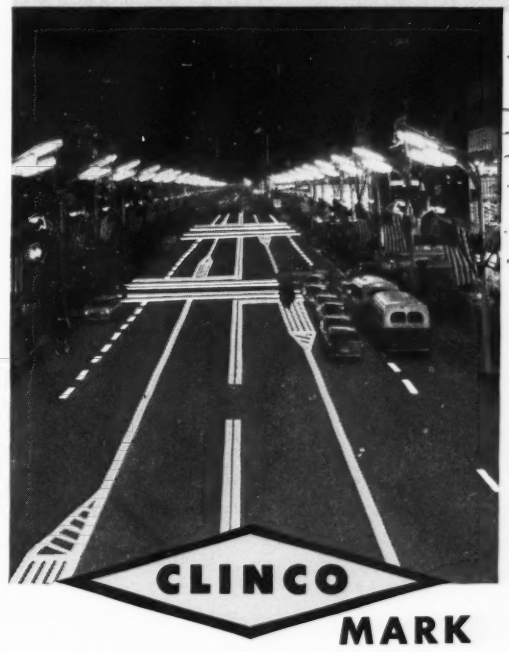

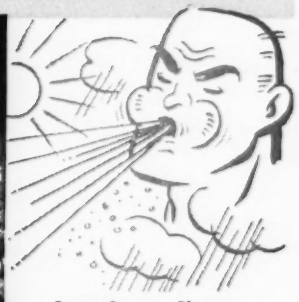

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Washington Area

The June 25th Area Meeting, held at the Top of the Ocean Restaurant in Tacoma, was attended by 16 members and one guest. Walt Wheeler of John Graham and Company, who has attended Area Meetings previously, was reintroduced by Jerry Cysewski of the same firm. Willa Mylroie was welcomed as a new Associate member of ITE though she is no stranger to most Area members and has attended several Area Meetings.

Bob Dunn indicated that a problem may confront the Seattle bid for the 1962 National ITE Convention, namely the ability of one of the potential general chairmen to spend the time and effort necessary to insure a successful meeting. A solution suggested by Roy Sawhill was that of two co-chairmen to head up the Convention Committee, and Roy volunteered to assume half the load. The attending members were generally enthusiastic toward Seattle as the 1962 site, and felt that the Century 21 International Scientific Exposition in Seattle that year would make it a banner year for those who stay over. A vote of confidence was made to reaffirm that the Washington Area wants to hold the 1962 National ITE Convention in Seattle.

It was brought out that the members in Eastern Washington, who are rarely able to attend meetings in Tacoma, are thinking of forming their own Area.

Ken Cottingham and Jerry Cysewski presented a program of slides and explanation of the geometry and operation of Interstate 5, the Seattle Freeway, in Central Seattle as pictured from the 65-foot long, 30-foot scale freeway model. Of special interest is the Reversible Lane Feature, one

(Continued on page 62)

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(Continued from page 44)

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YEARBOOK CHANGES

(Continued from page 54)

MANNING, John L. (Junior)
Director, Dept. of Traffic & City Planning, Room 207, City Hall, Schenectady, New York. FRanklin 4-4121 SEND MAIL: Apt. 8-D-3, Sheridan Village Apts., Schenectady, New York.

PAGE, Peter M. (Associate)
Traffic Construction & Maintenance Supervisor, Chicago Park District, 425 E. 14th Blvd., Chicago 5, Illinois. HArrison 7-5252 SEND MAIL: 400 Braddock Drive, Melrose Park, Illinois.

POW, Raymond H. (Associate)
Town Planning Officer, Auckland City Council, Town Hall, Queen Street, Auckland, New Zealand.

SCHOFER, Ralph E. (Junior)
Traffic Engineer, Hardesty & Hanover, 101 Park Avenue, New York 17, New York. ORegon 9-1360

WEISSTUCH, Donald N. (Junior)
Traffic Engineer, Arnold H. Vollmer Associates, 67 West 44th Street, New York 36, New York. OXford 7-3270 SEND MAIL: 2626 Homecrest Ave., Apt. 6M, Brooklyn 35, New York.

Membership Applications

The Institute of Traffic Engineers welcomes applications from qualified traffic engineers, but does not desire as members persons who are unqualified. Listed below are the names of those from whom applications for membership or transfer in grade have been received since the last published list. Institute members are urged to review this as soon as possible and immediately inform the Executive Secretary's office if names of people are found who are known to be unqualified for ITE membership or transfer.

NEW APPLICATIONS

AXELRAD, Kenneth B.
Traffic Engineering Aide, Department of Traffic, Room 1000, Los Angeles City Hall, Los Angeles 12, California. July 8, 1959 for JUNIOR.

BONNIVILLE, John William
Highway Engineer Trainee, Virginia Department of Highways, 1221 E. Broad Street, Richmond, Virginia. July 19, 1959 for JUNIOR.

COLEMAN, Francis E.
Junior Highway Engineer, Connecticut Highway Department, Wolcott Hill Road, Wethersfield, Connecticut. July 6, 1959 for JUNIOR.

COOPEY, Martin P.
Professor of Civil Engineering, Oregon State College, Corvallis, Oregon. July 10, 1959 for MEMBER.

JOHNSON, Barnard Charles
Assistant Engineer I—(Civil), City and County of San Francisco, 460 McAllister Street, San Francisco 2, California. July 1, 1959 for JUNIOR.

KNIGHT, Lee Olin
City Traffic Engineer, 516 E. Grand Avenue, P.O. Box 1450, Ponca City, Oklahoma. July 11, 1959 for JUNIOR.

LOVE, Gerald D.
Highway Design Engineer, U. S. Bureau of Public Roads, Room 1201, D & H Building, Albany, New York. July 2, 1959 for ASSOCIATE.

MILLER, Charles Robert, Jr.
Traffic Engineer I, Room 215, City Hall, Chattanooga, Tennessee. July 8, 1959 for JUNIOR.

MURRAY, Charles Thomas
Associate Engineer, Traffic, Seattle Engineering Department, Traffic Division, 105 Public Safety Building, Seattle 4, Washington. July 10, 1959 for ASSOCIATE.

OWENS, Robert Dale
Traffic Field Operations Engineer, Minnesota Highway Department, Capitol Approach, St. Paul 1, Minnesota. June 26, 1959 for ASSOCIATE.

SPIKER, John Wesley
Associate Highway Engineer, County of San Mateo, Court House, Redwood City, California. July 1, 1959 for ASSOCIATE.

THWAITES, Douglas Herbert Cody
Traffic Materials Engineer, Ontario Department of Highways, Traffic Section, Parliament Buildings, Toronto 2, Ontario, Canada. May 5, 1959 for JUNIOR.

TISDALE, Eldon Dean
Highway Designer Cl. III, Idaho State Highway Department, 601 Main, Boise, Idaho. June 17, 1959 for JUNIOR.

TOPP, Robert Martin
Assistant Engineer, Research Department, Toronto Transit Commission, 1900 Yonge Street, Toronto 7, Ontario Canada. July 21, 1959 for JUNIOR.

WORSLEY, George Norman
Assistant City Engineer in charge of Traffic and Surveys, City Hall, Victoria, B. C., Canada. July 3, 1959 for ASSOCIATE.

APPLICATIONS FOR TRANSFER

ACTON, Alvin Arthur
Deputy Traffic Commissioner (Acting), Traffic Division, Room 327, City Hall, St. Louis 3, Missouri. July 21, 1959 for ASSOCIATE.

BARR, John Wallace
Division Engineer, Traffic Planning Division, Metropolitan Dade County, 850 N. W. 23rd Street, Miami, Florida. July 8, 1959 for ASSOCIATE.

CONLEY, Richard Allen
Assistant Director of Public Works, City Hall, San Antonio, Texas. July 8, 1959 for MEMBER.

CULVER, Bruce R.
Assistant City Traffic Engineer, Seattle Engineering Department, 105 Public Safety Building, Seattle 4, Washington. May 6, 1959 for MEMBER.

GIVENS, Benjamin McKinley, Jr.
Traffic Engineer, Urban & Land Planning, Pennsylvania Department of Highways, Room 525, North Office Building, Harrisburg, Pennsylvania. July 1, 1959 for ASSOCIATE.

KLINE, Floyd A. Jr.
Engineer of Traffic Regulations (Interstate), Division of Traffic Engineering, State Highway Department of Indiana, 110 N. Senate Avenue, Indianapolis, Indiana. July 1, 1959 for ASSOCIATE.

SIEGEL, Stanley Theodore
Director of Traffic Engineering, Room 7, City Hall, Indianapolis 26, Indiana. June 15, 1959 for MEMBER.

STOCKDALE, William K.
Assistant Traffic Engineer, 411 City Hall, Spokane 1, Washington. May 14, 1959 for MEMBER.

TILLMAN, Donald Calvin
Assistant District Engineer, City of Los Angeles, 19040 Vanowen Street, Reseda, California. June 12, 1959 for MEMBER.

MOTOR VEHICLE DEATHS AND CHANGES

	DEATHS				CHANGES				
						Last 12 Months			
					1956-	1957-	1958-	4 Months Moving Ave.*	
Month	1956	1957	1958	1959	1959	1958	1959	'57-58	'58-'59
January	2,954	2,882	2,770	2,880	— 3%		+ 4%		0%
February	2,652	2,508	2,360	2,410	— 9%		+ 2%		— 1%
March	2,940	2,843	2,560	2,790	— 5%		+ 9%		+ 2%
April	2,970	2,933	2,580	2,610	—12%		+ 1%		+ 4%
May	3,094	3,065	3,010	3,250	+ 5%		+ 8%		+ 5%
June	3,338	3,302	3,000	3,150	— 6%		+ 5%		+ 6%
6 Mos.	17,948	17,533	16,280	17,090	— 5%		+ 5%		
July	3,555	3,308	3,210			— 3%		— 6%	
August	3,535	3,635	3,450			— 5%		— 5%	
September	3,653	3,365	3,330			— 1%		— 5%	
October	3,476	3,466	3,600			+ 3%		— 1%	
November	3,603	3,620	3,510			— 4%		— 1%	
December	3,858	3,773	3,620			— 3%		— 1%	
Total	39,628	38,702	37,000						

*Four Months Moving Average is based on changes between the totals for four months instead of one month. For example, the April figure shows the change between the totals for January-April 1958 and January-April 1959, etc. Adding several months together tends to smooth out single month changes which may be affected by differences in the number of weekends in a month from one year to the next, random variations, etc.

All 1956 and 1957 figures are from the National Office of Vital Statistics.
The 1958 and 1959 figures are National Safety Council estimates.

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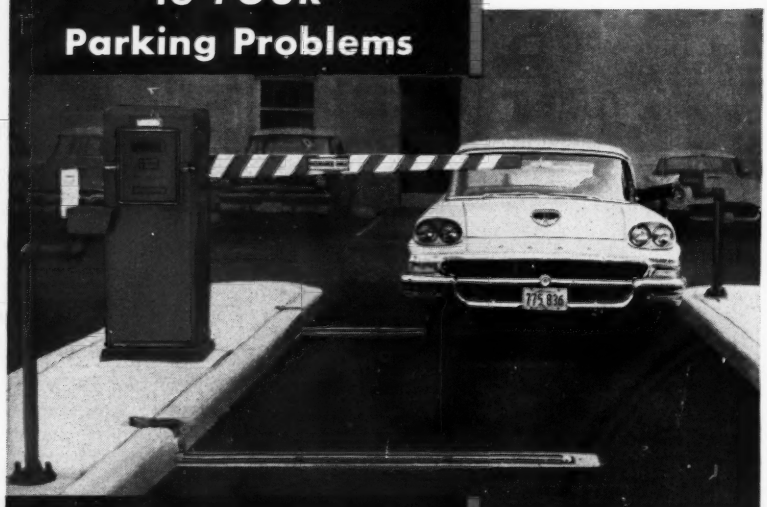

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SECTION NEWS

(Continued from page 57)

to four lanes of virtually separate roadway which will be independent of the other eight lanes and operate in the direction of peak traffic flow. This reversible feature entails some interesting considerations in its connections with the surface street system. The slides presented many excellent views, seemingly more realistic than observation of the model itself.

Oregon Area

Co-Chairmen for the Oregon Area were elected at the last Oregon Area ITE meeting held July 10, 1959 at The Anchorage in Portland. It was decided to have two-year overlapping terms. Robert D. Conklin was elected from Salem for a two year term and Richard C. Speer will serve another year.

J. Al. Head, Director of District 6, commented on the ITE Workshop and other ITE affairs. A movie, "Highway Life Lines," was also presented followed by a few words from Mr. Norris of Norris Paint Company.

During the summer months, the Planning Survey Section of the Traffic Engineering Division is conducting a comprehensive external Origin-Destination Study of the City of Portland and its Metropolitan Area. The study will be conducted at 12 interview stations throughout the area. It is anticipated that approximately 70,000 interviews will be taken during the study period. Origin-Destination Surveys are also to be taken in the upstate cities of Eugene, Corvallis, Bend and on the oregon Coast Highway in the vicinity of Manzanita.

MIDWEST SECTION

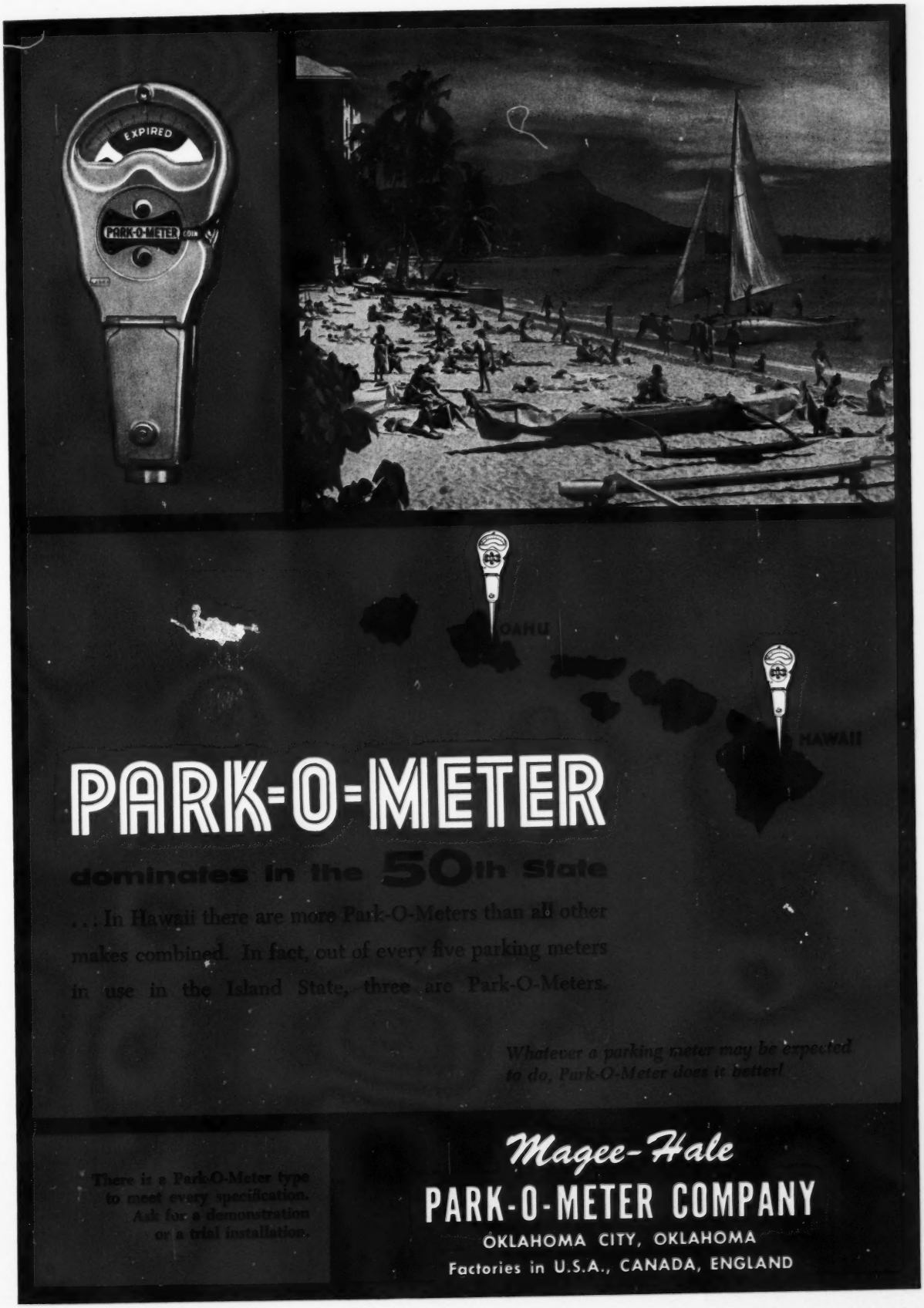
Two Midwest Section men have followed Horace Greeley's advice and headed west: Charlie Mele to Tucson, Arizona, and Jack Hartley to Kansas City.

Local ITEs have turned athletic for the summer season participating in a softball league in Grant Park, Chicago. Joe Wozniak's City Bureau of Street Traffic team has been and out so far, winning the hard ones behind the sterling pitching of Jack Sorenson and the heavy hitting and flashy base running of Neil Kenig. Wilson Campbell's CATS team is currently supplying the foundation for the league while the Cook County Highway Department's teams of ringers (no ITE members) are setting the pace. Doug Carroll, Tom Cots and Commissioner DeMent came out opening night to take a little batting practice and throw out the first balls.

Is this what happens when women try to invade a man's field? Evanston's "Meter Maids" have rebelled because the city fathers say they must wear skirts while performing their duties enforcing meter parking. They are threatening to quit unless they are permitted to continue to wear the pants in the family. Maybe this sort of thing is one of the reasons that the ITE has only four feminine members and most of them are located in the broad minded far west.

One of George Hagenauer's troops has been conducting an interesting socio-economic survey along Chicago area expressways. An examination of empty whiskey bottles, beer cans, cigarette wrappers and other such refuse indicates a more affluent type of citizen north than south. Watch for more on this in one of the future Highway Research Board agendas.

Bob Zralek is hoping that Queen Elizabeth will make a return visit to Chicago soon so that his Traffic Engineering Center can put his traffic plan into effect again now that all of the bugs have been ironed out. We all appreciate the fine weather the Queen brought with her.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